

Audubon

JANUARY-FEBRUARY 1954

Magazine

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Volume 56, Number 1, Formerly BIRD-LORE

PUBLISHED BY THE NATIONAL AUDUBON SOCIETY

A bimonthly devoted to the conservation of wildlife, plants, soil, and water.

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AUDUBON MAGAZINE is published bimonthly by the National Audubon Society. Subscription \$3.00

per year in U. S., its possessions and Canada; 2 yrs.—\$5.50; 3 yrs.—\$7.50; Foreign, 1 yr.—\$3.25. Checks and money orders should be made payable to AUDUBON MAGAZINE. Editorial and advertising office, 1130 Fifth Avenue, New York 28, N. Y. Reentered as second-class matter April 29, 1942 at the Post Office at New York, N. Y., under the Act of March 3, 1879. Copyright, 1954 by the National Audubon Society. Postmaster: If undeliverable, please notify Audubon Magazine on Form 3570 at 1130 Fifth Avenue, N. Y. 28, N. Y.

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Letters

More About Fear in Young Birds

I would like to comment on Mr. Anderson's experience with a fledgling and on his question arising from the experience, "Had the parent neglected to teach the young one fear?" ("Letters," *Audubon Magazine*, November-December 1953).

My own experiences with juvenile robins and towhees lead me to believe that, as suggested by Mr. Terres, Mr. Anderson may have mistaken an apparent lack of fear for what was actually lack of recognition or sensory awareness.

Behavior of robin and towhee fledglings indicates that fear is innate, latent, and awaiting an appropriate *releaser* to give effect to a specific pattern of behavior. Parental example, though of enormous value to the young through expediting a releaser, obviously is not the only means by which a chick can learn to fear. When I restore it to freedom, the adolescent bird I have reared since it was a tiny naked thing first looks skyward before flying the few yards to the ivy-covered woodshed. Adopted young robins, "freeze" at sight of hawk or crow and utter the robin's thin yet penetrant warning of danger from a predatory bird. What taught these orphans?

My young robins, crouching thus, could be picked up and moved from the window; but free robins in this state, which approaches catalepsy, will not suffer me to come very near before a still more powerful releaser sets them in flight.

An adult male robin that had learned to overcome the fear he had of other humans, would by a visibly great effort approach me closely and take food from my hand. However, doubtless feeling that what was safe for a parent might not be safe for the young, he would hurriedly feed an adventurous chick that might come too near us, and then speed it away with a sharp cry to shelter. Once, however, one of his chicks hopped onto my foot and stayed while I dropped food morsels which the parent gathered and fed it one by one. None of his chicks subsequently showed less fear of me than did other visiting robins, though my towhee orphans in year around contact outdoors with me are noticeably more tame than their fellows.

In exceptional cases such as these orphans that are solitary save for their

foster parent, it may be that isolation and claustrophobia make the young bird especially sensitive to the releaser mechanisms built into it by heredity.

MORRIS JACKSON
Fanny Bay, British Columbia

A Better Day for Coyotes

"Coyotes Protected" (September-October 1953 *Audubon Magazine*) is a milestone and I trust it means a better day is coming. Written by a rancher, telling of the convictions and the deeds of ranchers, it should make a real impression on other farmers.

I hope you will have it reprinted and distributed by the thousand.

MARGARET M. NICE
Chicago, Illinois

Editors' Note: Reprints of the coyote article are available from Audubon House at the rate of 2¢ each in quantities of five or more.

What Is A Bird-Watcher?

We have been asked to find the technical name for "bird-watchers" but we have not been successful since the resources of our library are not broad enough to furnish the information.

If it is not too much trouble, will you kindly tell us the correct nomenclature?

ALICE M. AMOSS, Librarian
Army Chemical Center, Maryland

Editors' Note: So far as we know, there is no scientific name in common use to denote the activities of bird-watchers, other than *ornithologist*—defined by Webster as a student of that branch of zoology which treats of birds and thus implying rather more than simply watching.

If there were such a scientific term, it would logically be *auspex*. We have never seen it used, however, except in *The Western Tanager*, bulletin of the Los Angeles Audubon Society, which had this to say:

"In Ancient Greece an Avis spe-

or *Auspex* was a bird viewer. But his watching of birds was not for pleasure or sentiment, but in order to divine the future course of events by observing the flight and actions of birds. Of course, if the divinations were favorable, they were auspicious. So we who are interested in watching and studying birds really belong to the clan—*Auspex*, though the term is not used in this country."

All of this is borne out by Webster's



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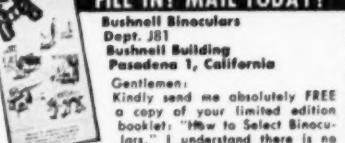
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Unabridged. It might be added that *auspex* is given as having the same meaning as the more familiar Latin *augur*.

More "Big Hops"

William Byron Mowery's article, "The Mystery of the Big Hop," July-August 1953 *Audubon Magazine*, has given me a thrill and satisfaction long hoped for.

One March evening a few years ago, I was grading students' papers in a country schoolhouse. It was nearly twilight when out of the corner of my eye I caught a flicker of movement outside my window, as though a large bird had flown briefly into the air and down again. I had often noticed the cottontail rabbits playing about on the school ground in the evening, but as I watched from the window where they were not aware of human presence, two of the three rabbits seemed to be attempting to outjump the other in gigantic running hops.

As the one I presume now to have been the "little lady" would pause here or there on the grounds, each of the other rabbits would take a run and flying leap over her. Each jump must have been at least 15 feet long and four or five feet in the air.

I could not believe that even a cottontail for all his prerogative for hopping could cover that much space through the air. The whole performance must have been repeated a half-dozen times before they ran off into the buckbrush at the edge of the school ground.

Several persons to whom I dared tell my rabbit story simply looked at me with a skeptical stare. Now thanks to Mr. Mowery I can authoritatively substantiate my own observation.

MRS. REID W. GREEN
Topeka, Kansas

Is the Upland Sandpiper Increasing?

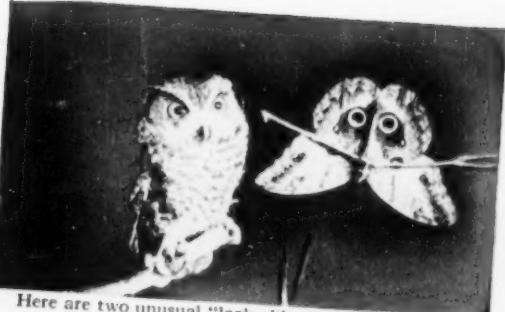
This letter is prompted by William C. Grimm's fine article on the upland sandpiper in the July-August 1953 issue of *Audubon Magazine*. When I was a youngster living in western Massachusetts—this would have been around 1915, although many accounts would seem to make this too late a date—these beautiful birds were common in that area. Every farm seemed to have at least one pair, and on any morning in the spring you could expect to see one alight on a nearby fencepost and lift its long wings above its back before folding them, and to hear its far-sounding whistle—just a bit like that of a bob-white, but more liquid and long drawn-out, with an in-

Continued on Page 48

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Roger Peterson's BIRD'S-EYE VIEW

The Cattle Egret Again

IN my last column I neglected to mention an incident that took place last April when James Fisher and I were in St. Johns, Newfoundland. Just before our departure from that sea-girt province, Leslie Tuck, the dominion wildlife officer, who was showing us his workshop, said, "I'd like to show you an egret that was taken on the Grand Banks last fall." It apparently came aboard a fishing boat, exhausted. Pulling out a tray, he picked up a well-made skin and handed it to me. I expected to see an American egret, but this bird was small, no larger than a snowy. It was not a snowy, however, or a young little blue heron. What did he have here—a cattle egret? The bill was yellowish, as a cattle egret's should be, but its legs were blackish.

That would add up to American egret in my "Field Guide" but it was far too small, even allowing for minimum measurements of the American egret. But those black legs; how to explain those? Every cattle egret I had seen in Spain had reddish or yellowish legs; however, they were all adults at the beginning of their nesting season. Perhaps the juveniles have blackish legs (later I found that they have) but the British handbook in its usually excellent section on soft parts makes no mention of the fact. There was just a telltale trace of buff on the crown; it could have been a stain. Rather than pass judgment on the bird at the time, I suggested that it be sent to Ottawa for checking. A few days ago, a long awaited letter from St. Johns contained the verdict. My suspicions were confirmed. It was the first

known occurrence of the cattle egret in Canada.

Ethics in Wildlife Photography

Twenty years ago I was quite certain that the field of bird photography was quite circumscribed; it had its limits. There were still a number of American species which had not yet been pictured on film, but as for quality and techniques, I doubted whether, considering the limitations of camera optics and film speed, much more progress would be possible. How wrong I was! Since then, much faster films have come on the market, allowing greater depth of focus; there are color films, synchronized flash, stroboscopic light, and countless new and ingenious camera accessories.

With these great advances in the tools of photography there is an increasing tendency on the part of many wildlife photographers to resort to controlled conditions. However, none would be so brazen as to palm off a mounted bird as the real thing. But it has been done in the past. Even photographic contests have been won by such deception. I remember, some years ago, a print which had been awarded the wildlife prize in an international salon. It was a shot of the Canada geese in the flying bird dome of the old bird hall at the American Museum of Natural History. A generation ago, a well-known bird photographer, it is said, committed suicide after being accused of a photographic fraud. With difficulty I restrained from making similar accusations when a young chap, just before the war, came into my office at Audubon House with an album of his bird photographs. Most of them were typical beginners' snaps, not too close, not too sharp. Thumbing through the pages I came suddenly to a series of close-ups, pinpoint sharp. They were of shorebirds and night herons on a mudflat. Although I could tell at a glance that the birds were mounts, there was one damning point which the photographer had overlooked. These birds, walking in soft mud, left no tracks!

In a recently published book, a

Illustration by Roger Tory Peterson



truly fine collection of bird photographs, we find several photographs of hawks labeled "captive." Fine, we can see by their jesses that they are captive, but in the book there are at least 15 other photographs of birds in captivity or under restraint where no such qualifications are given. Somehow, we will accept a photograph of an insect or a reptile taken under restraint, but a photograph of a bird taken in the studio or in a pen seems wrong, unless it is so stated. It comes uncomfortably close to "nature faking," even if the subject is alive.

Most of us have seen the war-time English film, "The Tawny Pipit," a comedy based on the fictional occurrence of a nesting pair of tawny pipits in England. (The British handbook actually does give one nesting record.) I asked James Fisher, who was one of the technical advisors of the film, if the rumor were true that most of the shots of the tawny pipit at the nest were really of a meadow pipit, a common British species. He replied that it was true, but didn't Hollywood use Gary Cooper, Cary Grant, and other stars to portray fictional characters? The movie industry is based on simulation, so we make certain allowances. We don't mind in the least that the coyote and the others in Walt Disney's "Beaver Valley" were somebody's pets. The important thing is that the natural history facts should not be distorted. Although specialists might pick flaws here and there, the Disney films are handled with a great deal of skill and integrity. Any other outfit in Hollywood would probably make a botch of things. "Bear Country" probably was

filmed entirely in the wild. Most of the situations could easily be duplicated in the Yellowstone. But—let's face it—a splendid film like "The Living Desert" could never be assembled without resort to some "studio shots" (particularly those of small rodents, showing cross-sections of their burrows, etc.).

On the other hand, an Audubon Screen Tour audience expects the creatures they see on the lecture screen to be free and wild, unless the speaker says otherwise. Here again, exceptions might be tolerated in the case of some insects and reptiles—or aquarium shots.

Exactly what do we mean by "controlled conditions" and where do we draw the line? I have seen a butterfly photographer wait as patiently as a bird photographer to snap an insect which he hoped would land on a certain flower. But the usual procedure resorted to by some is to slow the butterfly down by placing it in an icebox for awhile and then place it on the flower. Similarly, lizards, usually too fast to cope with, are slowed down by refrigeration.

Continued on Page 43

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Every day, every hour, selfish interests are at work to change or destroy the purposes for which your national wildlife refuges were created. Dr. Gabrielson, formerly chief of the U.S. Fish and Wildlife Service, and at one time responsible for the refuge system, gives us his personal story of

THREATS TO THE FEDERAL

By Ira N. Gabrielson*

THE National Wildlife Refuge System, being public land, much of which was purchased with special appropriations or duck stamp money, seems to be fair game to everyone who wants something for nothing. This includes governmental agencies at all levels as well as private individuals who see a chance of making a neat profit. Presumably this condition always will exist, and the only real protection for the refuges is strong support for maintaining their integrity by a well-informed public able to resist all attempted invasions.

The refuge system was established for two purposes: (1) to provide areas to preserve habitat for various species of North American wildlife that were in danger of extinction, and (2) to preserve or restore migratory waterfowl habitat at strategic points along the major flyways and in the breeding and wintering grounds.

Despite the fact that the refuge system occupies only a small fraction of the area of the United States, it constantly is threatened by efforts to take parts of it for uses incompatible with its intended purposes. It has been the policy of the U. S. Fish and Wildlife Service from the beginning to permit uses that are not detrimental to wildlife. People have not only been allowed but encouraged to go to the refuges to see the different kinds of wild creatures using the areas. Fishing also has been permitted in those places where suitable waters are available. It likewise has been found that the cutting of hay, and winter grazing at proper sea-

sons, frequently have been valuable management aids on some waterfowl refuges. From my own experience, I know that the use of limited grazing or hay cutting sometimes helps to maintain better waterfowl food and cover than would be possible if no such activities were permitted.

On the Malheur Refuge in Oregon, when the Service obtained control of the area, my first thought was to eliminate all such use. Under the conditions then existing, this seemed quite logical. The area had been badly overgrazed, and the first results of eliminating grazing and haying really were beneficial. The vegetation recovered and provided an abundance of nesting cover and food-producing plants for the birds. However, as the seasons passed, the vegetation became so thick that it was used less and less by the birds. Young birds often hatched some distance from the water's edge and could not get through the dense cover to the water, and many areas of good food-producing plants were practically closed to the birds by the density of vegetation. Nesting studies showed a rapid decrease in the number of duck nests per unit of area. Following this, some areas were opened to experimental grazing, and it was found that grazing after the ground had frozen removed enough of the old vegetation to permit much wider use of the land for nesting. It also was noticed that the strips that were cut for hay were used more heavily by the birds than the tracts that remained uncut. Since that time, a system of grazing and hay cutting has been developed to maintain the vegetation in a condition most suitable for birds. This likewise has been done on other refuges with similar conditions. The danger is that some people will assume that every refuge can be treated in the same way and

produce the same results, an assumption that is not always valid.

These kinds of uses of refuges are compatible with the primary purpose since they help maintain food and cover in the condition in which it is most useful to the birds. Care must be taken to see that the time and extent of use is limited to the point where it will produce the best results.

There are other possible uses that should be mentioned. Removal of sand and gravel, for example, has been permitted and at times has been useful in the development of an area. At other times, it has done no harm, yet provided some values for the local community. In some refuges, land suitable for agriculture is available, and a system of sharecropping with neighboring farmers has been developed, which permits the cultivation of this land by these individuals, with the government share of the grain left on the ground or stored for feeding wildlife in critical areas. This has operated to reduce crop damage on the adjoining lands and to provide additional food for the birds. Such uses, so long as they are controlled in the interests of the wildlife, are not only harmless but often beneficial, and it is not these that are considered threats to the system.

The threats to the refuges can be divided roughly into two categories: (1) invasions or attempted invasions by governmental agencies, and (2) invasions by private agencies or individuals. Of the two, the invasion by governmental agencies usually is far more serious and sometimes far more damaging. Of all the threats, those originating with the Armed Forces are the greatest. It seems that any time the military services look for land, for any purpose, they pick the refuge system, probably because it

* This is an address, prepared by Dr. Gabrielson, President of the Wildlife Management Institute, Washington, D. C. It was presented as a part of "A Conservation Symposium" at the National Audubon Society Convention on Tuesday, November 17, 1953.

WILDLIFE REFUGES

An American antelope, or "pronghorn," in the Desert Game Range, Nevada.



All photographs courtesy of the U. S. Fish and Wildlife Service, by E. P. Haddon, S. W. Ouradnik, and C. J. Henry.

already is public land that can be secured without purchase.

About a year ago, the members of the U. S. Department of the Interior Conservation Advisory Committee were informed that the Armed Forces were asking for the use of more than 20 refuges. Some of those were big game refuges; others were for waterfowl.

Of the three services, the Air Force is the most aggressive. Two cases which came to attention involved the Cabeza Prieta, one of the mountain sheep refuges in southern Arizona, and the Desert Game Range in southern Nevada. Both were established primarily to preserve remnant herds of mountain sheep. On the Cabeza Prieta, the Air Force was given the right, during World War II, to use the game range and adjoining public lands for air-to-air gunnery practice. With the beginning of the Korean War the Air Force extended its activities in this area and demanded primary jurisdiction over the game range lands. The U. S. Department of the Interior, considering that wildlife had certain rights there, did not agree to the primary right request. This has resulted in a stalemate which has prevented conclusion of the matter in a satisfactory manner. Also on the area the Air Force started placing an air-to-ground gunnery target within the game range but withdrew this upon protest from the Fish and Wildlife Service.

On the Desert Game Range, the Air Force moved into the heart of the game range and installed air-to-ground targets without consulting the Fish and Wildlife Service. Such arbitrary and high-handed tactics should be protested vigorously, and every effort should be made to force

them to remove their targets from the Desert Game Range, and to make arrangements for the maintenance of the Cabeza Prieta Refuge for its intended and necessary purpose.

These cases are not isolated examples. Some of you may remember the uproar some years ago over Henry's Lake, one of the few remaining spots upon which trumpeter swans nest and breed, outside Yellowstone National Park and Red Rock Lakes National Wildlife Refuge. This is a beautiful area, and unquestionably would have made a fine summer camp for the Army if they had been able to gain control. However, the public protest over their request for its use for maneuvers and artillery practice was so great that they quickly found another area.

DURING the last war, the Armed Services suddenly confronted the Fish and Wildlife Service with a demand for the entire area of Bombay Hook Refuge in Delaware. The story was that they had invested over a million dollars in facilities for testing rockets and that they just assumed they could have this refuge whenever they wanted it. The Fish and Wildlife Service finally allowed them to use a small area along one edge for testing purposes, and so far as I know, it was adequate. At least no more requests for the use of the entire area were received. I have always had a suspicion that the reason for demanding this 14,000 acres of waterfowl marsh in Delaware had been to provide a shooting place for the Army higher-ups stationed in Washington.

Another illustration is the persistent demand for enormous areas in Alaska. One of the more recent requests was from the Army for a great block of land just north of the highway from Anchorage to the junction with Richardson Highway. Perhaps the fact that this is the home range of one of the best and most accessible herds of caribou had something to do with the selection of this particular area for a bombing range.

Quite often these demands are made under the cloak of secrecy for security reasons. During my term as Director of the Fish and Wildlife Service, I did not have too much trouble in fighting off such demands because the Secretary invariably backed my stand. Unless, however,

the Secretary of the Interior is a staunch supporter of the refuges, these encroachments could impair the whole wildlife management program.

Another more recent attempt, and one which many probably will remember, was the Army scheme to buy private lands both to the north and south of the Wichita Mountains Refuge in Comanche County, Oklahoma, and then take over the refuge area. This refuge is used by a great many people; it provides the only area for miles where the public can picnic, fish, and otherwise enjoy the out-of-doors. A portion of the area had been developed for recreational use by the U. S. Forest Service before it was turned over to the Fish and Wildlife Service, and the facilities now serve large numbers of people from far and wide. The public protest caused the Army to abandon the scheme, but it may easily be revived again.

Other public agencies, notably the Reclamation Service and the Army Engineers, are equally anxious at times to use refuge lands for their impoundments. Presumably one of the basic reasons for looking with covetous eyes on these areas is that the land already has been bought and paid for, and if these properties could be used, the cost of their projects would be lower.

THE latest furor concerns the plan of the Reclamation Service to destroy the Lower Souris Refuge in North Dakota. In the opinion of many conservationists, this is one of the most successful and most important refuges in the entire system. When I was in North Dakota in June of this year, the people in the vicinity of Lower Souris, as well as in Bismarck, were talking about the great development proposed by the Reclamation Service. This plan, according to those stories, was to erect a huge dam on the Canadian border (also the north boundary of the refuge) which would flood all of the Lower Souris Refuge with many feet of water. The people were sure that the dam would be built and that the refuge was doomed. The only reason offered for locating the dam so as to destroy the Souris Refuge is that by so doing they could pick up return flow water from any bench land that was to be irrigated below the Cana-

dian border. If it is imperative that they do not permit a drop of water to get into Canada, other than the agreed amounts from the Souris River, there is no reason why they could not construct return flow canals above the refuge boundaries and pump the water back into an impoundment upstream from the refuge. Such an arrangement would be no more cockeyed than many of the proposed schemes, or some that are in operation now. At present, this has quieted down under Secretary McKay's order that the two Services try to work out a solution.

RIGHT now, I know of no active scheme of the Army Engineers that threatens a refuge, but their attitude always has been like that of the Reclamation Service. I have no doubts, if one of the refuges happens to lie within an area where they can build a dam or make some other development, they will try to use it.

It is not only federal agencies that get into the game, but states and local communities as well. Massachusetts is working on a scheme to take over the Monomoy Refuge and a considerable part of the Parker River Refuge, both in the name of beach and recreational development. There certainly can be no objection to Massachusetts developing public beaches, but it is odd that only two refuges on all of the Massachusetts coastline seem to be suitable for the development of such recreational facilities. It is my considered opinion that if they looked very hard, they could find other suitable places.

Not only states, but local governmental agencies, get into the picture on occasion. For example, the city of Decatur in northern Alabama wants all of the west bank of Flint Creek removed from the Wheeler Refuge and given to them for future city development. The fact that the town can grow in other directions does not seem to matter if this publicly-owned land can be secured for nothing. The area that they want to take out of the refuge is the arm of the lake upon which the refuge headquarters now stands. The TVA is supporting the city in this request, as well as a request for the removal of about a thousand acres of the Duck Creek Unit on the Tennessee Refuge for development as an industrial site. The TVA transferred this



land to the Fish and Wildlife Service for refuge purposes after long and difficult negotiations, and apparently they now want to recapture some of it for other purposes. Many conservationists have felt for a long time that the interest of the TVA in any natural resource, other than hydroelectric power, has been superficial, and these activities are an indication that such feeling has some justification.

It is not unusual for private individuals to get into the game and to generate considerable Congressional pressure in pushing their demands. Those efforts are varied; many projects are speculative or are designed to help speculative schemes. For example, the Chincoteague Refuge was threatened recently with two types of invasion. One of them still is active. A land development company has secured possession of the beach in Maryland between the refuge and the Ocean City harbor entrance, and is promoting an Ocean Beach homesite subdivision. Having sold some lots, they are promoting a scheme to run a road along several miles of the refuge beach to a bridge across the marsh and bay to the village of Chincoteague. They knew that the refuge was there at the time they promoted the beach development. If it is important to have a direct road to their area, they can build a bridge directly across Chincoteague Bay without invading the refuge.

ONE other threat to the Desert Game Range in southern Nevada is pressure to permit desert land claims on the lower land of the refuge to develop irrigation by pumping. The water supply for the mountain sheep is furnished by springs high in the mountains, and the removal of water from the slopes lower down may so lower the water table as to dry up the springs and make it impossible to maintain the mountain sheep herds in this dry country. Since this is one of the finest herds of Nelson's mountain sheep in existence, it would be a great disaster to permit the habitat to be destroyed merely to provide a few more desert land claims. There are thousands of acres of desert land outside the refuge boundaries that are available for such speculative enterprises, if the people really want to gamble in that way.

Oil and gas developments always

offer threats to any refuge whenever they occur in the neighborhood. Many of you doubtless remember the efforts to force the Fish and Wildlife Service to give a blanket oil lease on Okefenokee, at the time of the oil excitement in southern Georgia and northern Florida. Apparently the pressure for this has subsided. At the present time, however, pressure is on refuges in North Dakota in the vicinity of the recent oil developments. The Lower Souris already is involved, and Lost Wood, Upper Souris, Des Lacs, and several of the more valuable easement refuges lie within possible future development areas. These refuges are major nesting areas, and the disturbance of oil development could have a much more serious effect than it has had on the wintering grounds to the south. Several of the refuge areas already were under oil leases when acquired. The oil companies have been quite cooperative, and the disturbance to wildlife has been held within reasonable proportions. Nevertheless, some disturbances are inevitable, and might be much more serious on nesting than on wintering grounds. The Fish and Wildlife Service should continue its policy of opposing vigorously all requests for oil or gas leases on such areas.

THE big game refuges in the West, created from the public domain, still are open to mining activity. The purchases with appropriated funds, which include most of the duck stamp areas, are not open to invasion, even though legislation has been proposed to open some of them. The Fish and Wildlife Service has permitted the removal of sand, gravel, and stone where it would not be harmful or detrimental to the refuge program. This has been in line with a consistent policy of making the areas as useful as possible to the local communities without interference with the primary purposes of the refuges. This policy does not prevent efforts, often pushed through political channels, to get special concessions for mining purposes on the refuges. Many of you doubtless have heard of the efforts to get concessions to develop the shell deposits in Pimlico Sound. Public protest was so great that the requested permit was denied. This activity would have been harmful to the waterfowl area

in the north end of Currituck Sound and might have affected the Back Bay Refuge across the Virginia line.

Some time ago heavy pressure developed to open the Chincoteague Refuge to mining development. A showing of zircon and titanium found on the area was the basis for a plan to dredge the area to a depth of 35 feet. Needless to say, this would have destroyed much of the habitat as well as the protective dune area along the ocean. This refuge is used in fall, winter, and spring to a large extent by the sole remaining flock of greater snow geese, and it is important that there be no impairment of the vegetation of this area. This application for a permit was denied, but it and similar requests undoubtedly will arise again whenever someone sees that it is possible to make a quick dollar by invading a refuge.

When the excitement over oil and gas died down at Okefenokee, it was thought that all major threats had vanished. However, efforts now are underway to get permission to cut the Dinner Pond stand of cypress, one of the few remaining groves in this fabulous "land of the trembling earth." Presumably these trees were too young or too remote to be taken advantageously at the time the swamp was logged, but with the present price of lumber, it might be economically possible to strip the area. Needless to say, this should not be allowed. This grove is one of the few remaining stands of cypress, and if invasion of this area is permitted, we may expect that as the younger cypress now present in Okefenokee grow, efforts will be made to log them as they reach marketable size.

THIS statement sums up the present threats to the refuges. Others may develop before this paper is presented. It appears logical to say that whenever a governmental agency for any reason can see any advantage to itself in invading a refuge, it is apt to make another try. This statement applies equally to individuals and corporations, and the only safeguard, despite laws, is a strong, informed, and militant public that will fight to maintain the integrity of the refuge system in the same effective way that public spirited individuals have fought in the past and are continuing to fight to maintain the national park system.

TO PRESIDENT DWIGHT D. EISENHOWER

TELEGRAM

December 29, 1953

PRESIDENT DWIGHT D. EISENHOWER
The White House
Washington, D. C.

The National Audubon Society with continent-wide membership urges your rejection of the Echo Park Dam feature of the revised Colorado River Storage Program recently recommended to you by the Secretary of the Interior. We believe it extremely important to the public interest that the National Park and Monument System be protected against encroachments inconsistent with the purposes for which these parks and monuments have been established. The proposed Echo Park Dam furnishes an outstanding example of inconsistent and damaging encroachment. Letter follows.

JOHN H. BAKER, *President*
National Audubon Society

LETTER

December 29, 1953

PRESIDENT DWIGHT D. EISENHOWER
The White House
Washington, D. C.

Dinosaur National Monument

Dear Mr. President:

You are a religious man and understand the meaning of the word spiritual.

To our Society, with its continent-wide membership, it seems very important, from the standpoint of public interest, that the spiritual, esthetic, health-giving and other recreational values of our National Parks and Monuments be permanently maintained. We feel strongly that it is contrary to the public interest to permit, within the boundaries of these parks and monuments, encroachments that are inconsistent with the purposes for which they were established.

We have heard you refer to the "locking-up" of natural resources. We do not believe, and we are confident that you do not believe, that the resources of the National Parks and Monuments are "locked-up" if they

are of benefit to the public spiritually, esthetically, physically and recreationally.

Doubtless other organizations and individuals will communicate with you, pointing out that there are certain alternative sites to that of the projected Echo Park Dam; that power could be produced from lignite in that area, but outside the boundaries of the Monument, at less cost per K.W.H. than the projected cost from water power through the creation of the Echo Park Dam. To us reasons of this kind for reconsideration of the proposed project, though important, seem of relatively minor consequence as compared with the maintenance of the principle that, insofar as our National Parks and Monuments are concerned, there shall be no encroachments permitted inconsistent with the stated purposes at the times of their establishment.

With all the emphasis at our command, we wish to encourage you to reject the Echo Park Dam feature of the revised Colorado River Storage Program recently recommended to you by the Secretary of the Interior.

Sincerely yours,

JOHN H. BAKER, *President*

(Editors' Note: The issue over construction of Echo Park Dam in the Dinosaur National Monument is now before Congress. Persons who wish to express their views on this subject may write to their Senators and Representatives in Washington.)



The breadfruit tree at the edge of the jungle.

With agoutis and coati-mundis, and a deer-tapir feud, life was always interesting at the

Sanctuary under the Breadfruit Tree

By Elizabeth Ingles

OUR little cabin is dwarfed by the giant breadfruit tree. Its green walls weathering to gray blend into the gray and green pattern of the jungle, but its shiny corrugated iron roof is ugly and foreign. In contrast the breadfruit tree is truly beautiful. It stands tall and straight with glossy green leaves and large rough fruits. These fruits draw the animals out of the jungle, and from our vantage point on the front porch or at an open screened window we pry into the secrets of many tropical creatures feeding under the breadfruit tree.*

Like ourselves, the breadfruit (*Artocarpus communis*) is a foreigner to Panama. Years ago it was introduced into Central America from its native home in the East

* Our bit of jungle is on Barro Colorado—that island paradise for biologists. Covering an area of six square miles it is in the Canal Zone, in Gatun Lake. It was set aside by the government in 1923 as a tropical research laboratory. Here biologists from all over the world study the plants and animals of a magnificent evergreen forest. As a result of their studies have come more than 650 individual books and papers. My husband, our 5-year-old son, and I spent three months in this tropical wonderland—months packed with interesting nature experiences. Our first bit of luck came when we were assigned to the cottage under the breadfruit tree.

Indies. The tree immediately became popular with the West Indian negroes and was planted for food and shade in Central America wherever they lived. Probably no one knows who planted the giant tree behind our cottage. Today it reaches some 60 feet toward the blue tropical sky. When we first came to the island in the middle of December, the breadfruit tree was clothed with enormous, lobed, green leaves, and large rough fruits were ripening on its branches. Few leaves were on the ground, but as the season progressed more and more of the great leaves turned yellow. They dropped with a loud scraping noise, but this noise was nothing compared to the loud plop made by the fruit as they ripened and fell from the tree.

The coati-mundis couldn't wait for the fruit to ripen and fall. It was not hunger that drove them to climb high up into the tree, for no island coati needs to be hungry. Everywhere near the buildings are fat tarantulas; always some fruit is ripening in the forest, and countless rodents and birds live about the clearing. Add to this natural menu

All photographs by Lloyd G. Ingles.

Baird's tapir came for ripe breadfruit that had fallen to the ground.



table scraps tossed out by the cook. With such a bountiful food supply it seemed strange to me that the coatis bothered to eat the breadfruit. However, often in the early morning the shaking of branches called our attention to an animal high among the heavy green leaves. Invariably the climber was a coati. With what ease he traveled up the trunk and over the limbs. When we felt sure he would lose his balance, his heavy tail flopped over to steady him. Some people believe this long, brown, pointed tail is prehensile, but that is not true. It is, however, a very muscular and wonderfully controlled balancing organ.

The coati is a relative of the raccoon but does not seem to be nearly as nocturnal. Its diet is omnivorous, like that of a raccoon, and it is equally cunning. Although the coati is at home in the trees, it hunts a great deal on the ground. On nearly every trip along the Barro Colorado trails we saw coatis moving rapidly through the woods with their tails held high in the air. For some reason the Panamanians call the coati *Gato solo* (lone cat), but it seems inappropriate to me, since they are not cats and seldom solitary. In fact, judging from observations made on the island, I would say they are quite gregarious. This does not imply that the animals are always amicable for theirs is a society of "an eye for an eye" philosophy. We see many blind (at least in one eye) individuals and coatis with dripping wounds are common. A few such wounds may result from encounters with other animals but most are the result of fights with other coatis for the favor of some female beauty. Sometimes an old male, defeated in combat by his young, more vigorous fellows, becomes an outcast. He is shunned by other coatis both male and female. They drive him from food trees and the carcasses of dead animals. Age and weakening muscles interfere with his ability to obtain food for himself. Alone, surly, aging, he plods the trails until perhaps some puma kills him and carries his body into the den to feed the hungry cubs.

Among the 20 or 25 coatis that came to eat the cook's scraps, we had named certain favorites. There was Whitey, Grossy, and Paul Pry. Paul Pry was always up to something. He



The raccoon-like coati, at home in trees or on the ground, eats tropical fruits, nuts, insects, lizards, birds' eggs, and small mammals.

it was who awakened us many an early morning by dropping the big fruits of the breadfruit tree. Grumpy we named because of his early rising and we thought it served him right that many of the breadfruits he cut off were carried away and eaten by agoutis before he reached the ground.

A colony of four or five agoutis live near the stream under the big roots of the breadfruit. I first saw this curious-looking rodent in a zoo in Costa Rica, where they spent most of the time underground and were difficult to see. Our colony, although shy, was very active. Someone aptly described the agouti as a small animal with a rabbit's head and a pig's body. Actually it is a large, apparently tail-less rodent that burrows into the ground along heavily forested ravines. On Barro Colorado agoutis are abundant but elsewhere in the Canal Zone and in the Republic of Panama they are rare. It is a vegetarian, and its flesh is very tasty. Hence the natives have reduced its numbers by over-hunting it.

For a month we saw our neighbors, the agoutis, nearly every day. Then toward the end of January we noticed that they had disappeared. I do not believe that they had abandoned their burrows beside the stream, but that they hunted for food elsewhere in the jungle. By the end of January the main breadfruit crop was gone, and other ripening

fruits in the forest doubtless led the animals to feed away from the clearing.

Unlike the coatis the agoutis seem to be solitary animals. We often met single animals in the deep woods. The shrieking cries of "nequi! nequi!" uttered as the animal leaped off into the brush never failed to startle me. Incidentally, it is probably from this cry that the natives derived the name of *nequi* for this rodent.

At first, my husband spent days of waiting before an agouti lost its fear sufficient to eat the breadfruit placed within range of his camera. Later after he had all the pictures he needed the agouti became a nuisance, because it ate the bait he put out for peccaries. The peccaries were very shy. Like the other animals they were fond of the breadfruit but were attracted also by bread or potato peelings. The agoutis never touched the potatoes but ate the breadfruit bait whenever they could. An animal trail led out of the jungle to the stream edge. Here the bait was placed and it was here that the mother, collared peccary brought her babies to eat the handout. Both the white-lipped and collared peccaries live on the island, and the collared is especially common. We often saw where they had been rooting in the forest, and occasionally saw a small band of collared peccaries. Usually they heard or smelled us first and disappeared. These "wild



Each time that a ripe breadfruit fell to the ground, agoutis came out of their burrows to feed on them.

The Panamanian white-tailed deer liked fermented breadfruits, and often drove the male tapir from under the tree.



pigs" have trails on which they habitually travel to and from their feeding grounds. For some reason they do not use the man-made trails much but prefer to travel their own narrow paths through the thickets. Like a pig, a peccary will eat almost anything. The collared species moves about in search of food during the day and on moonlit nights. The white-lipped species prefers to feed at night. Although collared peccaries can be readily tamed and make interesting pets, the larger white-lipped species is considered dangerous, especially when wounded or cornered.

Early in January the breadfruit began to shed heavily, and by the middle of the month the ground beneath the tree was covered with large dry leaves. Even a small animal like an agouti made quite a racket when running over the leaves, so it is not surprising that we were often awakened at night when the tapir came to eat the breadfruit. Baird's tapir is quite common on the island. Normally tapirs are shy animals that spend their days drowsing in a thicket. We read that "tapirs are rarely observed even by careful naturalists working in regions where they are numerous." So we did not begrudge the sleep lost when heavy walking on the dry breadfruit leaves awakened us one moonlit night. Sneaking to the window we saw the large black form of a tapir close to the cabin. He was eating a ripe breadfruit. As we watched there was more noise of walking and another tapir slowly appeared from behind the house. The moon was so bright that it was easy to see the white-tipped ears and the long proboscis-like nose. The next morning we learned from the employees that these two tapirs had been raised here as kitchen pets. Now they were on their own, but frequently came to the kitchen for treats.

Early one morning we heard a soft "tsu tsu" sound outside our door. We were astonished to see a full-grown tapir climbing the stairs to the laboratory. This was the male, Jimmy. We fed him bread and bananas. The next evening he returned with his girl friend, Corina. Our son, age five, soon learned that the tapirs were harmless. Whenever they appeared he begged bananas and bread from the cook and saw to it that both received an equal share.

The tapir, Jimmy, especially liked to be rubbed—under his chin and along his neck. He would stand quiet for awhile enjoying the scratching. In a little while it must have felt so good that he would lie down. One could tell by the way he looked up that he wanted to be scratched forever. Corina enjoyed the scratching too, but being a female, she was more restless and soon left for the forest.

Jimmy was almost a nuisance. Often he would climb our cottage stairs and bump around against the furniture on the porch until we treated him to a banana. We soon grew accustomed to the racket he made walking on the dry breadfruit leaves. As long as there was ripe fruit on the ground both he and Corina made nightly visits.

Baird's tapir is a curious-looking mammal. It is a very squat black animal with white-tipped ears and short, sturdy legs. An adult stands about 30 inches high. The nearest living relatives of the tapir are the horse and the rhinoceros but a tapir has few horse-like characteristics. His

snout is long and sensitive, and he has the ability to shorten and lengthen it at will. A Baird's tapir perspires freely, and moisture stood out all over the bodies of Jimmy and Corina when they came to call. Even early in the morning, before the sun was out, they were not free from perspiring, nor were they ever free from ticks.

At first we tried to help them out by picking off the ticks, but we saw the task was a hopeless waste of time. Doubtless when the animals can stand the ticks no longer they scrape them off on branches or roots and relieve the itching by bathing in a stream or soaking in the mud of a wallow. Sometimes we surprised the tapirs feeding in the low shrubbery beside the lake, and they often whistled softly to us in recognition. Once Jimmy slid down the bank into the water, walked off through the mud and ooze until the water closed over his head. We could see him swimming or walking under the pier that projected out into the lake. At last some 40 feet from the spot where he entered the water he surfaced, climbed

heavily up the mud bank beside a heliconia plant, and then walked into the woods.

A Panama white-tailed deer visited the clearing. Like the tapirs she enjoyed tidbits from the kitchen. Like the tapirs, she was covered with ticks, although they didn't seem to bother her especially. She was sleek and fat. I suppose all jungle animals learn early in life to put up with ticks. During the dry season, especially, the woods are full of these annoying little arachnids. Our white-tail often ate the ripe breadfruits that lay fermenting on the ground. For some reason she did not like the male tapir. Perhaps she was jealous of his close relationship with Corina, for Corina and the white-tail were friends and enjoyed browsing together at the clearing's edge. Whatever the cause of her dislike the deer kept the male tapir, Jimmy, on the run. As soon as she appeared he retreated. I didn't blame him, for the deer did not fight fairly. As soon as she got close enough she struck with her sharp front hoofs. Jimmy's fat rear was heavily scratched with the marks of her hoofs—not deep enough to draw blood on the thick tapir hide, but certainly the blow itself must have been unpleasant.

Except for the deer-tapir feud, life under the breadfruit tree seemed to run smoothly. True the agoutis ran off with the fruit dropped by the coatis, but the coatis appeared to accept this philosophically enough. By the end of January most of the dead leaves had dropped, and new leaves were appearing. At no time was the tree completely bare. It seemed never to be bare of fruit either, for by the time the heavy, ripe fruits had all dropped, small new green ones were taking their places. No wonder the breadfruit tree is so popular. It is an excellent shade tree as well as a good source of food for beast and man alike. The fruit is abundant and free to all. Here on Barro Colorado Island, men hunt with cameras, nets, and binoculars. No gun shatters the jungle quiet. Prey and predator walk alike along the trails or scamper through the thickets. All must eat to live. The cunning, the strong, the fleet of foot and wing survive. Sanctuary for beast and man alike is provided here—everywhere—especially under the breadfruit tree.

PROTECTION FOR HAWKS AND OWLS

Unless real protection is forthcoming, hawks and owls will follow the trail of the great auk. In ignorance and against their best economic interests, farmers shoot hawks. Gunners along the coastal and mountain flyways slaughter thousands of hawks each fall. Hunters, resenting their supposed competition or simply reacting to a moving target, kill them on sight. And some Audubon members even shoot hawks that appear at their feeding stations.

There have been mistaken attempts to classify hawks as beneficial or destructive. The buteos, or soaring hawks—which live largely on small rodents—the sparrow hawk, and the owls other than the great-horned, have long been called the farmers' friends, as indeed they are. But the bird-eating hawks, the Cooper's and sharp-shinned, do not deserve to be branded as outlaws, for they have evolved in response to a natural opportunity (or need) for precisely their kind of predator. The falcon and the goshawk, both rarities, and the maligned great-horned owl, are also deserving of the public's good regard.

We need to understand two facts about the natural role of predators. They do not, under normal circumstances, reduce the prey populations below the numbers which can be supported by the environment. Predators harvest a true biological surplus, most of which would not survive even in the absence of the predation. The number of predators is limited by the abundance of the prey, and checks on predators become operative before prey populations are seriously reduced. Secondly, predators are essential to the health of wildlife communities. To assure survival in the face of adversities, nature has endowed each species with a reproduction potential far beyond the capacity of their habitat; each year many must die that others may live to carry on the species. The predator performs the subtraction more skillfully and with less cruelty than the other controls—starvation and disease—which nature holds in reserve.

—Irston R. Barnes in the *Atlantic Naturalist*.

ARIZONA'S BIGGEST MOUNTAIN

In southeastern Arizona, a wonderful variety of animals and plants makes it a rich hunting ground for naturalists. A trip up 10,000-foot Mount Graham, from desert floor to alpine peak, is an experience not to be forgotten.

All photographs by the author.



The Pinaleno Mountains rim the south side of Gila River Valley.

By Weldon F. Heald

DIVERSIFIED Arizona is in many ways the most remarkable and varied state in the country. She flings at you a lavish and bewildering conglomeration of natural phenomena and displays perhaps the continent's greatest range of climate, plants, animals, and birds. Nothing is normal in Arizona—on the other side of every mesa is something different, probably unusual, often unique, and it is the only place I know where you can drive your car in an hour or so from the cactus, yucca, and mesquite of the Lower Sonoran desert to Hudsonian forests of pine, fir, and spruce, and aspen groves, and wildflower meadows.

One of the most amazing demonstrations of the Sunset State's kaleidoscopic diversity is the trip up Mount Graham. Although the San Francisco Peaks and White Mountains in northern Arizona are higher, Graham's 10,713-foot crest tops ev-

erything in the southern part of the state, while its vast bulk, soaring 8,000 feet above the desert, dwarfs all other Arizona mountains in size.

However, Mount Graham is no single, lofty, Matterhorn-like peak. It is simply the culminating point of the Pinaleno Mountains, a huge uplifted mass of granite, 25 miles long and 12 miles wide, which rims the south side of verdant Gila River Valley like a great wall. To me, the Pinalenos resemble some gigantic prehistoric reptilian monster with its broad back swelling up to the rounded summit of Mount Graham.

Atop this monster, high above southeastern Arizona's wide, arid, treeless valleys, is a fascinating mountain realm of dense evergreen forests, grassy parks bright with flowers, cascading, fern-banked streams, and ridges commanding views of thousands of square miles. This magic green carpet spread over the tops of the Pinalenos is startling in contrast to the barren desert flanks be-

low, and it appears as if a piece of Oregon or northern Idaho had been dropped by accident within sight of the Mexican border.

But there is nothing remote or difficult about Mount Graham; it is a comfortable, friendly skyline oasis, easy to visit and explore. Miles of excellent trails thread the forests and lead over the highest peaks; several improved camp grounds and a small rustic resort are available; and in an hour from the valley you can drive your car to an elevation of 10,000 feet over the most spectacular mountain highway in the Southwest.

The Swift Trail, as the Mount Graham road is called, serves as a lively curtain raiser to the grand show aloft. It branches from U.S. Highway 666, seven miles south of the pleasant little Gila Valley city of Safford, and is a well-engineered, graded, dirt road, 36 miles long, which boosts you 6,330 feet up onto the huge back of the mountain. On

the way you pass with rocket-like rapidity all the climatic and vegetational changes you would view on a 2,000-mile trip from northern Mexico to Canada.

The junction, 3,321 feet in altitude, is surrounded by typical southern Arizona desert country, and the Swift Trail heads for the towering mountain barrier to the southwest across stony slopes dotted with cactus, yucca, greasewood, ironwood, and mesquite. Then, with a wide preliminary loop, the determined little highway ascends the foothills and lifts itself into the mouth of Jacobson Canyon. Ahead, bits of the road can be seen here and there twisting and zigzagging up the wooded headwall to the ridge, incredibly high on the horizon.

At 4,500 feet stunted junipers appear on the hillsides, then live oaks and piñons. The desert has been left behind and the air grows perceptibly cooler as you wind up through scattered woodlands and pass a shady picnic ground beside purling Noon Creek. A little above, bright green Chihuahua pines push up among the oaks. This is a three-needed Mexican pine, here at the northern

limits of its range. It can be distinguished by its open, rounded crown and scores of diminutive black cones.

Under the pines grow manzanitas, madrones, mountain mahogany and other shrubs, and canyon stream banks are lined with sycamores, cottonwoods, maples, and alders. Southeastern Arizona supports a truly amazing variety of plant life, complicated by a baffling mixture of Rocky Mountain, Mexican, and Pacific Coast forms. Furthermore, there is a generous sprinkling of species found only locally. This biotic variety persists also among mammals, birds, reptiles, and insects, and it makes the region one of the country's richest hunting grounds for naturalists.

Even the ubiquitous ponderosa pine, found throughout the Far West, indulges in strange antics in southern Arizona. Here it sports from three to seven needles indiscriminately, often on the same tree, and has differentiated itself into three distinct species, the finest being the majestic, five-needed Arizona pine.

Among the first scattered ponderosas, the road loops into Wet Can-

yon, 6,037 feet altitude, a moist, cool, granite-walled cove where a crystal brook comes tumbling down through a sylvan green tunnel of alders and maples. Here are picnic tables and grills, and on a mossy rock is a bronze plaque placed by the Safford Rotary Club at the dedication of the Swift Trail in 1938. It commemorates the vision and untiring efforts of Theodore T. Swift to make this scenic highway a reality. Mr. Swift, now nearly 80, came to these mountains in 1906 as ranger on the Mount Graham Division of the old Crook Forest Reserve, and several years later when Crook National Forest was established, he became its supervisor. Seldom has a man's love for a mountain found more appropriate expression than in this highway which bears Mr. Swift's name. Although on principle I am against more roads to open up the few remaining wild places of the West, I unhesitatingly rate the Swift Trail among Arizona's top sights, along with the Kaibab Plateau, Oak Creek Canyon and Monument Valley.

Beyond Wet Canyon, the road climbs the rugged mountainside and

The Swift Trail loops upward out of the desert to the broad shoulders of Mount Graham.



rounds jutting promontories in a series of lariat loops, then passes roomy Arcadia Campgrounds, and reaches Turkey Flat, 7,400 feet elevation, fifteen miles from the junction. This natural platform of 200 acres, clinging to the headwall of Jacobson Canyon, has been developed by the Forest Service as the Pinecrest Recreation Area. In a delightful forest of pines and firs, carpeted with lush ferns, are a small resort with limited supplies, large picnic grounds, and a summer home-site area.

The final climb to the ridge is made by switchbacks through a dark green forest of white and Douglas firs, with an understory of deciduous trees. Now and again you catch fleeting glimpses down the canyon and out across the desert to blue New Mexican mountains on the eastern horizon. In mid-October this stretch puts on a gaudy show of color. Flaming red maples, golden-hued aspens, and russet oaks flare in dazzling display against the somber conifers. Sometimes, too, in the first cold weather of autumn the upper forests become "cloud frosted"

with freezing mist. When the sun comes out the mountainsides gleam as if each tree were plated with shining silver.

The high divide of the Pinalenos is topped at Ladybug Pass, 8,408 feet, and an easy half-mile trail leads to Ladybug Peak, 400 feet higher. This wide viewpoint is well named, for in early summer every summit branch and twig is red with thousands of newly-hatched ladybugs. However, that is true of every high peak in southern Arizona, and I have seen clusters of these useful insects on the topmost stunted spruces of Mount Graham. What these millions of ladybugs eat during their youthful swarming on the mountaintops and where they go in late summer, I don't know, but their life cycle would make an interesting study.

Beyond the pass, the Swift Trail rounds the mountain to the southwest side and for six miles hugs the precipitous slopes high up under the summit ridge. Below is spread a vast, ever-widening panorama over miles of broad valleys, wrinkled hills, and rank after rank of mountains.

Twenty-three miles from the junction the road passes the 9,000 foot level and reaches the lofty sky-country on the wide back of the Pinalenos. Then for 13 miles you curve and dip among magnificent stands of pine, fir, spruce, and aspen. You skirt green meadows, cross rippling streams, and climb to rocky outlooks perched dizzily above plunging, mile-high slopes. The air has the redolent tang of the deep woods and you feel a thousand miles from the desert heat of an hour ago.

There are three improved roadside campgrounds to choose from in this delectable mountain oasis, and at Columbine, 9,500 feet, is a ranger station and a few Forest Service summer homesites.

My favorite camp is at Hospital Flat in a grassy swale fringed with aspens and shaded by four giant Douglas firs. This makes an ideal central spot from which to explore the high country. I always have a warm feeling of homecoming the first evening there as the setting sun gilds the tops of the firs and the liquid notes of the hermit thrushes break the stillness of the woods.

The trail up Mount Graham leads through evergreen forests and alpine meadows.





The high meadows are bordered by tall Engelmann spruces.



Autumn among the aspens and firs of Mount Graham.

Looking downward from 8,000 feet above the Gila River Valley.



Then when the glowing campfire snaps and crackles under the stars I know that another Arizona High Trip has begun.

A four-mile trail to the summit of Mount Graham starts from Hospital Flat. It leads through forests, aspen groves, and across alpine meadows, with panoramas over most of southern Arizona. The hike is a revelation in the variety and luxuriance of plant life in this isolated southern sky island where average precipitation is at least 40 inches annually. It is estimated that there are more than 300 million board feet of saw timber in the Pinalenos, and a million feet of lumber are cut each year under Forest Service supervision. Douglas firs reach diameters of five to seven feet and stand 150 feet tall, and the largest Engelmann spruce I have yet seen, here measured 15 feet around at shoulder height. Even aspens grow with trunk diameters up to two to three feet. An interesting southern migrant which extends into the mountains of Arizona and New Mexico is the five-needled Mexican white pine. Young trees closely resemble California's sugar pines, but their elders are encased in narrowly-ridged dark gray bark similar to the eastern white pine.

The upper slopes, above 9,500 feet, are covered with an almost continuous forest of Engelmann spruce, spiny alpine fir of the cork bark variety, a few aspens, and straggling, windblown limber pines on exposed ridges. In mid-June 1949, these high forests on the south and southwest sides experienced a gale of near hurricane force. A friend and I ascended Mount Graham two weeks afterwards and found the damage almost unbelievable. Huge spruces were leveled in windrows and we crawled over, under and through mazes of fallen timber piled like jackstraws. There were stretches of forest, hundreds of acres in extent, where every treetop had been snapped off. Branches, twigs and needles covered the ground a foot deep.

Undoubtedly this was the strongest gale that had blown in a century, and yet no human was aware of it. The fire lookouts on the lower peaks reported a stiff wind — that was all.

Spruce thickets completely hide the view from Graham's summit

dome. But if you push through the dense growth a few hundred feet northeast you suddenly come out on ledges which drop off in cliffs into the stupendous gorge of Deadman Canyon. Beyond stretches the desert, threaded by the strip of green fields along the Gila River, 8,000 feet below, and rimming the horizon are mountains in Arizona, New Mexico and far across the border in Mexico. The temperature difference varies from 25 to 50 degrees Fahrenheit between summit and base, and you can look down in one 10-mile sweep over five of the seven climatic and vegetational zones of North America. Only the two extremes, tropical and arctic-alpine, are missing.

From this vantage point you realize the huge size of this monster mountain and wonder how it came to be. Geologists tell us that the Pinalenos are a fault-block range, composed largely of massive gray granite, uplifted between two large depressed blocks which form Sulphur Spring Valley to the west and the Gila-San Simon valleys to the east. The broad, plateau-like summit region, above 9,000 feet, is probably a remnant of the original rolling lowland topography now lifted vertically more than a mile above its former surroundings. However, a series of deep canyons have bitten deeply into the northeastern slope of the mountains, and have formed impressive cliffs below the rounded summits.

The upper part of Mount Graham comprises a wilderness undisturbed by man. Eagles nest among the topmost cliffs and several families of black bears roam the spruce forests. Lower down live the white-tailed deer, mountain lions, bobcats, collared peccaries, and wild turkeys, along with hosts of birds and smaller mammals which grade with elevation from chickadees and chipmunks to coyotes and roadrunners at the mountain's foot. Each summer, too, the high Pinalenos stage one of the West's finest wildflower exhibits. Sunny slopes are spread with golden helianthus and verbenas; meadows bloom with violet shooting stars, wild iris, composites, and larkspur; shady woods and moist streambanks are brightened by white shooting stars, columbines, Indian paintbrush, silene, mertensia, pentstemon

and scores of other brilliantly colored wildflowers.

You can wander for a week or a month exploring these exhilarating mountaintops and discover something new each day. Grant Hill, Grandview Point, and Clark Peak are superb outlooks, all less than a mile from the Swift Trail, and isolated West Peak is reached by a six-mile hike from the end of the road. A 40-mile ridge trail traverses the Pinalenos from end to end and a round-the-mountain route can be taken with knapsack or pack train. Fishing is fair, if you know where to look for it, but the streams are short and steep.

Even the automobile mountaineer can indulge himself in the Pinalenos. Webb and Heliograph peaks, both over 10,000 feet elevation, are scaled by short spur roads from the Swift Trail. Each is a Forest Service lookout station and is topped by a steel tower where a cordial welcome is always extended to come up and see the view. Heliograph Peak was named during its occupation by the U.S. Army in 1886 as a sun-signal point in General Miles' campaign against the battling Chiricahua Apaches to the northwest. Then in 1846, when the region was still Mexican territory, Lieutenant-Colonel W. H. Emory passed by, bound for California with the advance guard of Kearny's Army of the West. He named Mount Graham, but neglected to mention whom he meant to honor. Several worthy Grahams of that day are possibilities, but no one knows which, so the mystery remains.

Serene and calm, Mount Graham has stood aloof from the centuries of human activities swirling about its feet. Up there the world is still much as it was before the first Spaniards came 400 years ago. So if life is becoming complicated these days and you crave the open skies, the smell of pines, and the peace and satisfaction that is best found in nature's wildest places, my advice is to take a High Trip to Arizona's biggest mountain.

How to check YOUR BINOCULAR ALIGNMENT

By Robert J. and Elsa Reichert

HERE'S no doubt about it. You want your binocular to show the birds clearly, distinctly, and without eyestrain—whether you look through one side only or through both.

You should therefore first make sure you see clearly through each side. As a matter of fact, you do this automatically when you adjust the binocular to your eyes, by focusing each side independently on distant print. Then, having checked each side separately, you should check their adjustment to each other—the alignment. Make certain that the view you see through the right side is exactly the same as the view you see through the left.

A method of testing alignment was described in our previous *Audubon Magazine* articles. That test is difficult for some types of eyes, so we suggest the following for those who have not succeeded with the other.

Arrange your set-up in front of a window with a view of a straight line which is horizontal and at least 100 feet away, such as the edge of a sign or a window sill. Do not look through ordinary window glass, it is too imperfect. An open window is best, plate glass will do. Looking at the line, make sure your binocular is correctly adjusted for your eyes, with the hinge bent so your eyes look through the centers of the ocular lenses.

Now place the binocular on a table, or other level surface, in front of the window. The binocular should be pointed toward horizontal line, with the eyepieces close to the near edge of the table, so you can look through them at the line. If the line is too high to be visible through the binocular, tilt the objectives upward. Use any con-



venient device that will raise both objectives equally.

One way is to put the glass on a book with the binding toward you, and place a ruler between the pages parallel to the binding. The book cover must be stiff enough so it will not sag under the weight of the glass.

You are now ready for the test, for which you should use one eye only.

Looking through the *left side* of the binocular, raise or lower the objectives by moving the ruler in or out until you see the horizontal line at the bottom of the field. Be sure the ruler is always parallel to the binding, so that the two objectives are raised exactly the same amount. If this method does not raise the objectives sufficiently, raise the outer edge of the book by putting under it another ruler or very thin book—use anything that will raise both objectives equally.

Now, without moving the binocu-

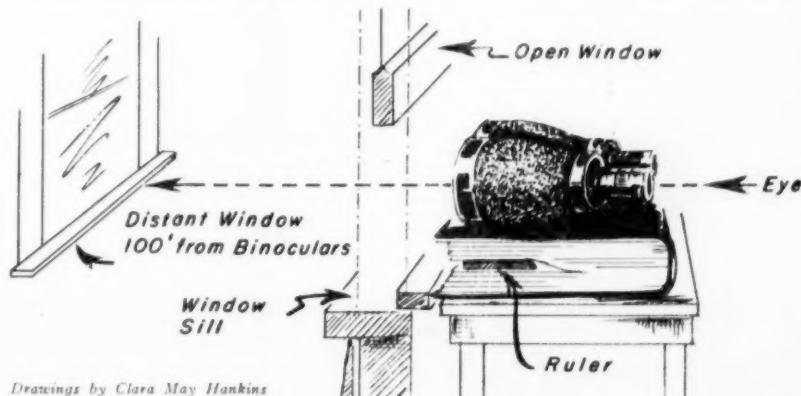
lar, look through the *right side*. If the line is in the same position (Figure 1), the alignment is correct. If it appears higher (Figure 2), the binocular is out of alignment. If it is not visible, the line is lower than on the left side. To determine how much lower, repeat the test, starting with the right side instead of the left.

When you try to use a binocular that is out of alignment, and your eyes attempt to fuse the two different views, you do not get one clear, steady image. Continuous use will sooner or later cause eyestrain. If, by any chance, you do see clearly and without effort, you will know that one of your eyes has ceased functioning. You have a "master eye." Both may function under normal conditions, but taxed in this way the weaker eye "quits," and you see only through the stronger. You might as well be using a monocular, for you are not getting binocular vision.

Surprising as it may seem, your binocular may be in good alignment for you and not for some of your friends. It may be out for those whose eyes are closer together, or farther apart, than yours. To make sure, check the alignment for other eye-widths (other hinge positions).

You may find, after you have handled the binocular in this way and then retested it for your own eye-width, that the alignment has changed somewhat. Such variation in alignment may be due to "wobble" (play) in the ocular, bridge or hinge adjustments, caused by too loose a fit. The variation will probably not be very great. Sometimes, but not always, such play can be corrected to a certain extent.

Continued on Page 29



Drawings by Clara May Hankins

A report on the

FLAMINGO

By Robert P. Allen

WE have recently completed nearly three full years of study of the American or roseate flamingo (*Phoenicopterus ruber*), most of it in the field. Our purpose has been to learn everything possible about the life and requirements of this species and to obtain a realistic, first-hand picture of the survival problems that it faces. Before reporting on its current status or offering suggestions for its betterment, it may increase our perspective, and perhaps help us to evaluate more accurately the job that we are trying to do, if we consider briefly some of the events and observations that are unavoidably a part of the background of the present study.

One of the first accounts in our ornithological literature of the habits of any of the flamingos is found in the narrative of William Dampier's 17th century voyage around the world, although the European race had been known to the people of the Mediterranean for some centuries before. Elgin Forsyth, long the Bahamas authority on our species, pointed out in an article in the *Nassau Guardian* recently that many books and records that might have given us a picture of the early Mediterranean colonies were destroyed when Julius Caesar's legionnaires set fire to the great library at Alexandria. We may suppose that Caesar had nothing against either flamingos or ornithological knowledge, but this early book burning may have dropped the curtain forever on a scene that we would give

much to see today, even in hieroglyphics. It is true, as Mr. Forsyth remarks, that the historian Tacitus, and Pliny the Elder, both wrote of the flamingo, but they added little to our knowledge. The Phoenicians, in their seafaring rambles along the shores and among the islands of the Mediterranean seem to have had the first widespread contacts with these birds, but anything they might have left behind by way of a record has evidently been lost, along with *The Ocean of Pytheas*. These enterprising people developed the alphabet, hence they must have had scriveners in their ranks, but these may have been employed chiefly in keeping accounts and drawing up contracts. From what we know about them it is quite likely that the Phoenicians were too busy trading to think of much else—trading flamingo tongues to the high-living Romans, flamingo feathers to the woad painted barbarians of the British Isles, and whole skins of the flamingo to the gullible natives of the Low Countries, who believed that they were getting the skins of the mythological Phoenix Bird, said to possess miraculous powers for restoring youth. No doubt the Phoenicians destroyed many thousands of these vulnerable birds and may well have succeeded in wiping out entire colonies on both sides of the Mediterranean. We can only surmise.

In view of the antiquity of all this it is rather startling to realize that the destruction of the flamingo—even to their slaughter for their tongues—continues today in many parts of the world, some of them not

so far from our own particular home base. In the light of present knowledge it seems reasonable to suppose that the original numbers of flamingos must have been tremendous, and this possibility, together with the fact that many flocks have retreated to isolated regions, may have prevented their ultimate and complete annihilation. Only in very recent years have steps been taken, in a few instances, for their protection. And its future, as with other large and highly conspicuous birds, is definitely insecure.

Thus, in spite of the intimate knowledge that early traders must have had of the flamingo colonies, from Tyre to the Pillars of Hercules, and Dampier's description of a New World colony, much of it erroneous, published some 2,000 years later, there was little accurate information on the flamingo until almost the close of the 19th century. When, in 1865, the Rev. Charles Lutwidge Dodgson wrote of the dream-child Alice using a live flamingo as a somewhat unwilling mallet in a croquet game, not much more was known of the species than in Dampier's time. Unlike the early Phoenicians, however, the Victorians produced men who could use the fruits of trading to study and to travel at leisure and even to accumulate accurate knowledge about the flamingo. In a very short time—between 1871 and 1895—Saunders, Lord Lilford, Sir Harry Johnston, Abel Chapman and, in the Bahamas, Maynard and Sir Henry Blake, undertook investigations that cleared away the debris of ignorance and

myth and laid the foundations for our present-day knowledge of the flamingo.

Even so, the distance that we have traveled along this road in the past 80 years or so has passed over many details and has lacked comprehensiveness. Without the added contributions of our own Frank Chapman, and, more recently, Salim Ali, Gallet, and Yeates, among others, we would know little more today about the habits of the flamingo than might be learned from watching a faded captive standing on one leg in a zoo. Then came new incentives. In our day we have witnessed the

unprecedented destruction of World War II. There was the inevitable reaction at the end of hostilities and this appeared to induce, along with many less encouraging results, a renewed interest in nature. This was a perfectly normal thing that had happened before. Men wanted to shut their eyes and their minds to devices that he himself had created, including Total War, and turn again to the quiet and simple beauties and the relative sanity of the natural world. In witness of this particular reaction, membership rolls in Audubon Societies and similar groups reached all-time highs. Books

about birds and other aspects of natural history appeared by the score, and one notable volume, about the sea, was on best seller lists throughout the country for a record number of weeks. Ever movie shorts about wildlife have been a box office success from coast to coast.

Not everything that the post-war student of nature saw has been pleasing to him. The plight that faces the American flamingo was obviously one of the trouble spots. For it was suddenly apparent that the flamingo of the Bahamas-Caribbean region had suffered from the impact of war, and its losses were all the more serious because of the many decades of prior neglect. Human populations had doubled and re-

All photographs by the author unless otherwise noted.

Flamingos have been forced out of one nesting area after another as our human population has increased. Photograph of flamingos by Allan D. Cruickshank.





Legal protection for flamingos means nothing to these Cuban fishermen.

doubled in areas once inhabited by the flamingos, and the birds themselves had steadily lost ground. They had been pushed out of one ancient nesting place after another — Run Cay, the Isle of Pines, Cayenne, Long Island, the Ragged Islands, Great Exuma, Lago de Enriquillo, Jamaica, Puerto Rico, the Virgin Islands, Cayo Coco, Baie des Gonaves, Ile de la Gonave, the Caicos Islands, Mayaguana, Rio Hacha, Isla Aves, Los Roques — and then, with shocking abruptness, their ancestral home in the Bahamas, An-

dros Island. This final indignity was a result of war and of one of the new by-products of war, the first a repeated "buzzing" by military aircraft, the second, disturbance by oil exploration crews. Paul Zahl discovered the deplorable situation at Andros and reported it widely. As the facts were assembled, other wartime losses came to light: desertion of the historic Dampier site on Bonaire Island in the Netherlands Antilles, driven off by American and Dutch military planes, and the apparent extirpation of the species in

The Governor of the Bahamas, Major General Sir Robert Neville (right), inspects former flamingo feeding ponds on New Providence. E. W. Forsyth of the Society for the Protection of the Flamingo is in the background.



the Galapagos Islands, where U. S. troops had been stationed. In other areas an endlessly growing human population, the disturbance caused by low-flying planes, penetration of hitherto isolated regions by the 4-wheel drive military jeep, expansion of certain industries, including the salt business, these and other factors were building a world to which the flamingo might have a difficult time adjusting.

In parts of this post-war world, however, there are people who view the threat to the flamingo with an alarm that has personal as well as philosophical implications. An editorial in the *New York Herald-Tribune* a year or so ago, expressed this feeling with simple candor.

" . . . Perhaps what is happening to the flamingo is faintly symbolic of what is happening to a great many lovely things, as machinery multiplies and inherits the earth. The process may be inevitable, but it is also a little sad. The world can get along without its flamingos, just as it might get along without gracefulness and charm, but it wouldn't be quite the same without them. The poor flamingo doesn't know about these problems, of course; it merely knows that things keep getting tougher all the time. And so, wearily circling in quest of a peaceful resting place, the flamingo is pretty much in the same shape as the rest of us. Perhaps that is why we look upon its plight with so much sympathy, and do our best to help it find a haven."

As an approach to the problem of conserving our natural resources, as represented in this case by a bird that has no claim to our attention beyond its sheer beauty, this viewpoint is both new and refreshing. It strikes us as an intelligent and realistic attitude that is a far cry from either that of the Phoenicians, who were willing to trade flamingo tongues or skins to the last one, or that of the estimable Victorians, who while fully aware of the beauty of the flamingo, were content to read a paper before the Royal Society on the comparative size of the nest mounds and then turn to something else.

No doubt the world of yesterday offered a simpler, less harassing existence, for men as well as flamingos. Today the challenge, on all fronts, is greater in dimension than man has had to face through all his long history. What happens to the flamingo — an incident of no importance in world affairs as a whole — will none-

theless demonstrate, quite as effectively as anything else, the caliber of our thinking, the level of our values and the good sense of which we are capable. No one can doubt that we will be able to make bigger and better jet engines or anything else that we may need in the way of manufactured goods and services, including bigger and better H-bombs if required, but no man can remake the original beauty of our land once it is destroyed. And that is just as true for flamingos as it is for anything else.

Suppose we return, however, to the immediate present and to the American flamingo, not in retrospect nor in the all too uncertain future, but to the flamingo as it is today. Where does it stand and what can be done to help it?

First, as to total numbers. According to our estimates there were as of last September 1, the end of the 1953 nesting season, some 27,900 of these birds over the entire range, including about 3,000 young added this year. This may seem like a great many birds, but actually it is far less than the normal population of the range and is about 6,000 less than the total for the same date last year. For a good many decades the population curve has been moving downgrade and it is continuing to do so, in spite of an occasional good year such as we had last season. Perhaps elimination of the human disturbance factor is the improvement needed. In the Camargue colony, a reserve kept up by governmental and private donations, the flamingos nested only 16 times in 34 years, sometimes missing three or four years in a row, yet they managed to maintain a level population.

In 1952 virtually our entire breeding potential made a start at nesting. Seven breeding sites were occupied, one flock building twice, in two different sites, before attaining success. A total of some 11,500 pairs managed to get through the incubation phase of the cycle. In the end, five colonies actually completed the season, bringing off about 6,800 young. The colony at Pekelmeer, on Bonaire, reoccupied since the war, was washed out by high winds and heavy rains and all young lost. The site on Bahia de Gloria, Cuba, discovered only this year, was raided by



Young flamingos are caught by natives in these nets and sold for food. Photograph taken in the Bahia de Gloria colony within the "Refugio Nacional para Flamencos," Camaguey Province, Cuba.



Nest mounds on La Orchila, Venezuela, deserted after a raid by fishermen. Photograph by Mrs. William H. Phelps, Jr.

At Punta Meco, Yucatan, a Mayan boy holds flamingo eggs washed from the nests by hurricane tides.



fishermen and most of the young killed, captured or scattered.

In 1953 less than one-half of potential breeding pairs attempted nesting. There were some disturbing factors of uncertain influence, such as dike construction near the Horse Cay site on Inagua, but a general failure to nest, following a full scale show last year, may be normal. As an indication of this, one of our members, Mr. Bayard W. Read, was at Bonaire from late February until early May. The flamingo flock numbered 3,750 birds in late February yet dwindled to a few hundred over the following weeks, for no apparent reason. No nesting took place.

In all, nesting was undertaken this year at three locations, and completed at two of them. In March some 200 mounds were built on the island of La Orchila, off the coast of Venezuela. In April the site was visited by Mr. and Mrs. William H. Phelps, Jr., of Caracas. Fishermen had raided the colony, presumably for the eggs, killed some of the birds and driven off the rest. All nest mounds were deserted. At Inagua, where great success was enjoyed last year, huge gatherings of flamingos were recorded in February, March, and April. The usual prenuptial "dances" were observed and conditions seemed favorable for a large nesting. However, for no obvious reason, only 846 mounds were constructed, the bulk of the Inagua flock moving in May to what are ordinarily considered winter quarters. A heavy rain decimated the hatch before it reached flying age and only some 500 young were reared.

In Yucatan the story is more encouraging. Early rains resulted in an unusually early nesting, but there were no floods and no hurricanes prior to fledging. A record number of breeding adults, 6,000, built at Mulsinic on Rio Lagartos and succeeded in bringing off about 2,500 young.

In order to evaluate these results, now and in the future, it is essential that we improve our basic knowledge of the flamingo in all departments. We now have on record the results of 16 attempted nestings. The accompanying tabulation (Table A) gives these figures. From data of this sort, plus the considerable accumulation of notes as to habits, food prefer-

ences, etc., that have been gathered over the past three seasons, we will be able to find at least some of the answers to our problems.

Of even greater importance at this time are direct efforts to secure better protection for the flamingo in the various countries in which it occurs, and especially in those where it still breeds. The work of the Society for the Protection of the Flamingo in the Bahamas, of which Mr. Arthur S. Vernay is President, has been outstanding in this respect. Funds have been raised by private subscription for the employment and equipping of special flamingo wardens, with emphasis on the colonies at Inagua, which are the most important that survive in the entire range of the species. This year the Bahamas Government also contributed funds to this work and provided other coop-

eration. The Governor of the Bahamas, Major General Sir Robert Neville, has served as Patron of the Society.

In Yucatan, as has been previously reported, the National Audubon Society, with the invaluable support of the Roche family of Merida, has employed two flamingo wardens during the last two seasons. The results have been gratifying in every way.

At Bonaire the Dutch Government continues to provide protection and no one may visit the flamingo nesting area without a permit from the Chief of Police. Mr. L. D. Gerharts is the staunch defender of the flamingo at this outpost of the Netherlands.

Elsewhere it has been difficult to arouse local interest in the welfare of the flamingos. As a result of the

Continued on Page 47

TABLE A: Results of 16 Nesting Attempts, 1951-1953 (*Phoenicopterus ruber*)

Year	Site	Nest Mounds	Young Reared	Eggs & Young Lost	Nest Mortality	Production Rate*	Remarks
1952	Horse Cay, Inagua	4895	3446	1449	29%	X.70	normal
1953	Mulsinic, Yucatan	3000	2500	500	16%	X.83	normal
1952	Yalmacal, Yucatan	2000	0	(rained out before clutches laid)			
1952	Coch Col, Yucatan	2000	1600	400	20%	X.80	normal
1952	Bahia Gloria, Cuba	2000	500	1500	75%	X.25	raided
1951	Upper Lake (A), Inagua	1500	60	1440	96%	X.04	flooded by rain
1951	Punta Meco, Yuc.	1500	250	1250	83%	X.16	hurricane flood
1952	Long Cay, Inagua	1244	1000	244	19%	X.80	normal
1951	Upper Lake (B), Inagua	1000	0	1000	100%	0	flooded by rain
1951	Pekelmeer, Bonaire	1000	800	200	20%	X.80	normal
1952	Pekelmeer, Bonaire	1000	0	1000	100%	0	high wind and rain
1953	Upper Lake (C), Inagua	846	500	346	40%	X.59	some loss from rain
1951	Vidal Sac Bob, Yuc.	500	250	250	50%	X.50	hurricane flood
1952	S. W. Nook, Inagua	269	156	113	42%	X.57	normal
1953	La Orchila, Venz.	200	0	200	100%	0	raided
1952	Old Bight, Abaco	146	110	36	24%	X.75	normal

* The estimated production rate or number of chicks reared to flight stage per breeding pair. Example: 4895 breeding adults x.70 equals 3426.5 chicks. The average production rate for "normal" nestings was x.75. Thus, a 25 per cent nest mortality (eggs and small chicks) may be considered normal on the average. It is believed that other mortality rates are 40 per cent for the first year of life and 20 per cent annually for adults. It may again be higher for old birds living beyond the average life span, which is unknown. There is one record of a captive flamingo that lived 18 years. Present

data indicates that a production rate of .67 chicks per breeding pair may be required to maintain a population level. On a basis of the limited data possible from these 16 reports, the average production rate over the entire range in the last three years has been .45 chicks per breeding pair. The Yucatan average has been the highest regionally: .57 per pair. Next, in order, are the Bahamas with .49, Bonaire .40, Cuba .25 and Venezuela .00. Losses in the Yucatan, Bahamas, and Bonaire colonies have been caused entirely by adverse weather conditions, in Cuba and Venezuela by raids.

HOW TO CHECK YOUR BINOCULAR ALIGNMENT—Continued from Page 23

How dependable is the above method of checking alignment? It is, of course, not as reliable as checking the glass on a precision collimator, such as is used in any properly equipped optical shop, which measures the error accurately. In fact, the method is unsuitable for a few poorly built glasses in which the metal rings holding the two field lenses differ in thickness. For most binoculars, however, it is so sensitive that you can probably detect a misalignment so slight as to be negligible. Bearing in mind that U. S. Government specifications, which are very stringent, permit a slight error (three minutes of arc) you can ignore one that is very small. If you have doubts, have the binoculars checked on a collimator.

As binoculars may be out of alignment when new, due to careless manufacture or to some part shaking out of place during shipment, it is wise to check before buying. Not all factories align to the extreme precision necessary for maximum comfort and clarity of vision, nor do most importers or dealers check for

alignment before selling a binocular.

Alignment is an exceedingly sensitive adjustment, depending on the correct position of all the parts. The slightest shifting of any metal part, or the displacement of any of the six (or more) lenses, or any of the four prisms, by as little as 1/100 inch causes change in alignment. It is apparent that continued good optical performance depends on the quality of the mechanical construction. It depends on the durability of the metal, on the accuracy of the machining and fit of the mechanical parts, and on how securely the optical parts are fastened.

Some structural defects cannot be corrected, but some can be improved during the process of re-aligning by the use of additional devices to fasten the parts more securely. Of course, the re-aligning should be performed on a collimator.

Consider the various tests suggested to help you obtain the best service from a binocular.* How often should you perform each? Optical specifications, such as magnification, light transmission, and field of view

you need check only once—when you buy the glass.

The cleanliness of the optical elements you should check once a year. By looking *into* (not through) each side, with the binocular held about 10 inches from your eyes and the ocular lenses pointing toward the sky, you can plainly see any dirt on the lenses and prisms. Of course, if you expose the instrument to excessive dust or moisture, you should make this test oftener.

The alignment,** which may change due to bumping or jarring, should be checked from time to time. Once you have made the test, it will be easy to repeat it. How often you should do so depends on the quality of your binocular, and on how roughly you use it. It is well worth the small effort. For only a binocular that is correctly aligned will give you clear and restful vision.

* "Know Your Binoculars," published in the January-February and March-April 1951 issues of *Audubon Magazine*, has helped many bird-watchers understand binoculars and get the best service from them. Reprints are obtainable from the authors: The Reicherts, c/o Mirakel Repair Company, Mount Vernon, New York. No charge will be made if this article is mentioned.

** Our test covers only vertical alignment. But if it is made for all eye-widths, as recommended, it will automatically reveal any horizontal misalignment bad enough to be disturbing.

★ ★ ★ NATURE IN THE NEWS ★ ★ ★

Reprinted from the New York Times, December 22, 1951

No Dam at Dinosaur

The disconcerting news that Secretary McKay has approved plans to construct a giant dam that would destroy one of the West's great scenic preserves has produced prompt and adverse reaction that we hope will be effective in stopping an inexcusable blunder. The Sierra Club of California, devoted to protection of the Western mountain country, has denounced the Secretary's decision as "the gravest threat to the national park system since its creation in 1916." Other conservation groups will doubtless follow suit. The battle over Dinosaur National Monument, more or less dormant for the past year or so, is about to begin again.

It is a battle that goes beyond the advisability of building this particular dam at this particular spot. Construction of Echo Park Dam, which the Secretary has now recommended to the President for submission to Congress, would mean that the bars are down for the invasion of any national park or monument so long as there is a likely water storage or power site within its confines. The pressures from both private and public agencies—in the latter group the Bureau of Reclamation stands in the forefront—against the national scenic and wildlife preserves is heavy and unremitting. If it is yielded to, in the present instance, there is literally no telling where or if it can ever again be curbed.

Of course the West needs power and water, and of course the Western (and Eastern) conservationists who for three years have been fighting this project are not fighting power and water for the

Continued on Page 37

Steamboat Rock towers some 700 feet above the Green River, which winds around its base. If Echo Park dam is built, only about 200 feet of Steamboat Rock will remain above water. Photograph by Devereux Butcher.



Traditionally, the mockingbird belongs to the South, but for at least a decade, it has been extending its nesting range northward. Here are some Texas observations about

By Bula E. Legg

THE mockingbird has no brilliant coloring as have the cardinal, painted bunting, and the Baltimore Oriole. He does not have a distinguished crest like the roadrunner or the cedar waxwing, but in spite of his unadorned dress of gray and white, certain characteristics make him the beloved bird of the South.

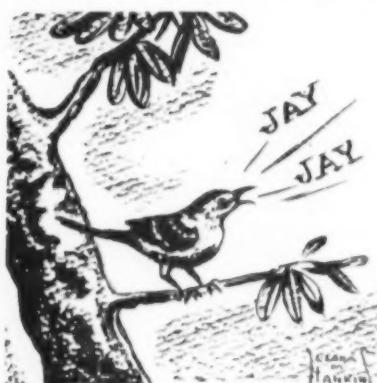
At times, he is very dignified; again, he is a veritable Puck. His anger when aroused seems almost terrifying. His sense of rhythm is marked, not only in his song, but in his dance. His intelligence quotient stands high in the bird kingdom. The mockingbird is possessive:

"This is my yard—robin, stay out!
This is my bath—grackles, beware!
This is my garden—posted! Keep out!"

The following observations near my home in Texas illustrate some of the many traits of this interesting bird.

Aggressiveness

A blue jay was sitting in a tall tree crying "jay! jay! jay!" A mocking-



bird swooped out of nowhere, frightening the blue jay out of the tree and sat in the spot the jay had vacated, calling mockingly, "jay! jay! jay!"

The mockingbird had built her nest in the honeysuckle vine by my porch. She did not object to my going on the porch to water my flower box or to care for my goldfishes, but when I dared to sit in the porch swing, I could have no peace from her scoldings.

One day I came home and found one of the nestlings hanging by its toes head downward. It was tangled in vines and strings. At first I thought the little bird was dead, it was so still; but when I took it in my hand I found that it was warmly alive. It cried, and the mother bird came shrieking at me. I had to get the scissors to cut the little foot loose from the tangle. More shrieks from the mother and louder, with her hazel eyes flashing anger. When I had the baby bird free, I placed it back in the nest thinking all would now be well. No! That mockingbird screamed at me until I returned to my room. I was tired and lay down to rest but there was not rest for me. She came to my window where she could see me and continued her wild angry cries until dark. The next morning I found the nest empty. The young birds had gone.

Territorial Defense

I played an unfair trick on a mocker one day. I placed a mirror on my feeding shelf just outside my window. Soon he came to the shelf. Then he saw that bird in the mirror! With all his feathers ruffled, his eyes flashing and with a scream—scream is the only word—he rushed to the mirror. Again he flew at the image in an inconceivable rage. I hurriedly drew the mirror through the window into my room. He tried to come through the window in his anger because the enemy had escaped into the room.

For an hour I felt a sense of guilt. There was nothing laughable about causing my beloved bird to become frenzied in an unfair battle.



Audacity

A dog was lying under a tree, dozing. A mockingbird evidently needed something to line her nest, for I saw her dive to the dog's back and pull out a bunch of hairs. The dog snapped and growled, but the bird was in the tree before he could do anything about it. Soon the mocker dived again. More hair from the poor dog's back. This happened three times before the dog left his shady place under the tree.

The Mimic

Mamie, my nurse, had taken me, her patient, to Cameron Park. We were seated on a bench. A silent mockingbird on a low bough just above our heads attracted my attention, for a mockingbird is not characteristically silent. He was eyeing us curiously. I whistled to him; he listened attentively, and I whistled again. His throat began to swell, but no sound came. After a few more whistles, a timid echo came from his throat—then he answered with more confidence, and soon no one could tell his whistle from mine. After about 30 minutes—he never seemed to tire—I had to return to my apartment to rest.

On the following day at the same hour, we again went to the park and again we sat on the bench. I had forgotten the bird until I heard a clear whistle, and there was my mocker on the same bough. I answered him and we kept up a duet

A Temperamental Southerner

Illustrations by Clara May Hankins.

for another half hour. Sometimes I would change my whistle, then he would not answer. He wished to learn one thing at a time.

We left the park and I was too ill to go back until a week had passed. Just as we neared our favorite bench a mockingbird flew over our heads, and I recognized my new friend's whistle.

* * *

I was in my garden. A house finch suddenly began his delightful warble as he perched on a wire nearby. A mockingbird sat on a twig of a fruit tree and listened attentively turning his head this way and that to catch every sound that the house finch made. No doubt he was adding the finch's song to his own repertoire.



The Farmer's Little Helper

A mockingbird tried to be helpful. A farmer drove his mules regularly across a railroad to his farm. When he whistled the mules started. One morning before the driver was ready, the mockingbird whistled; the mules thinking they had to obey the whistle, trotted off across the railroad track. Fortunately no train was in sight.

Intelligence

A mockingbird's babies were out of the nest, always a dangerous time for young birds, and there was a cat.

I heard the parent bird scream and ran to the rescue. When I had driven the cat away, I returned to my room. In a short time, more screams. Again I chased the cat away with stones. Soon the mockingbird learned that I would come if he called, and the minute I appeared at the door, he would grow quiet and watch the proceedings. I was kept busy the entire afternoon, for the moment the cat appeared, the bird called for help.

Early-Morning Party

Did you ever attend a mockingbird get-together? I heard a great to-do in a large tree in the backyard. In the tree were 25 or 30 mockingbirds. They were having a great time. If one stopped his antics long enough to begin a song, another was sure to fly into him with great gusto. Boys on the ball ground could not play a greater rough-and-tumble game. They kept this up—knocking each other around, chirping, singing when left alone long enough—for 15 or 20 minutes. Suddenly for no apparent reason, the birds left the tree flying towards the park. The party was over.

Singing

I was awakened at three o'clock in the morning; a mockingbird was singing wildly a few feet from my window. I slept no more but listened. No pause in the singing. Daylight came, still his voice rang loud and clear. I allowed nothing to distract me, for I wished to find how long he would sing without a pause. At nine o'clock he ceased. I saw him stealthily approach a trellis and disappear in the matted vines. Six hours of constant vigorous singing!

It is trite to say that mockingbirds are our best singers. Their own songs are beautiful, and they out-herod Herod in their mimicry.

We all love their rollicking songs

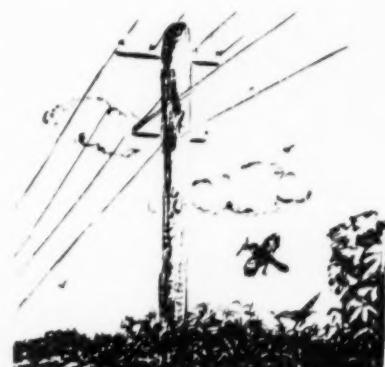
in the springtime when they perch on a chimney top or a telephone post and sing until they are so filled with their own music that they ecstatically fly up into the air, still singing, down again, up again, and if in a tree, they may tumble from limb to lower limb, almost to the ground in a rapture of song. In the moonlight the notes are full of witchery, low and sweet, loud and challenging. But the bird's autumn song is the loveliest of all. Not on a chimney top now, but hidden in a clump of bushes, his voice ripples and trills in melodies that reach the heart.

Once during a rainstorm I heard a beautiful burst of song; the notes rose and fell, the strains became "the exquisite music of a dream."

Filled with wonder, I crept to my window. There among the vines in the downpour of rain sat the melodist, a mockingbird, the unrecognized friend of my childhood, singing an unearthly aria in the midst of a storm.

Adaptability

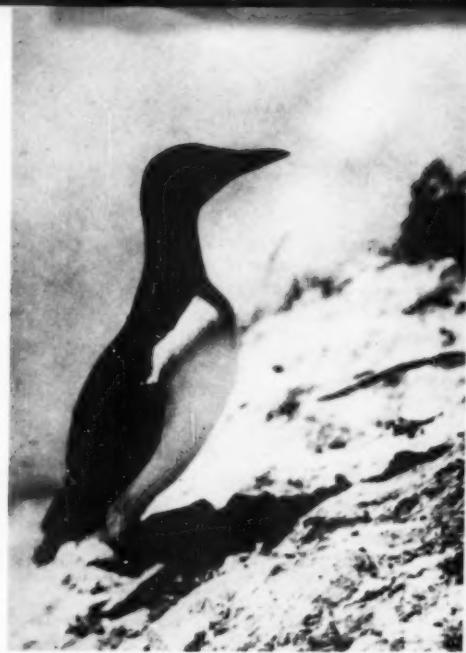
Some men in putting up wires had cut many pieces of the wire in four and five inch lengths. A mockingbird's nest was in the corner of the fence. And, of all things! The frame work of the nest was made of those pieces of wire.



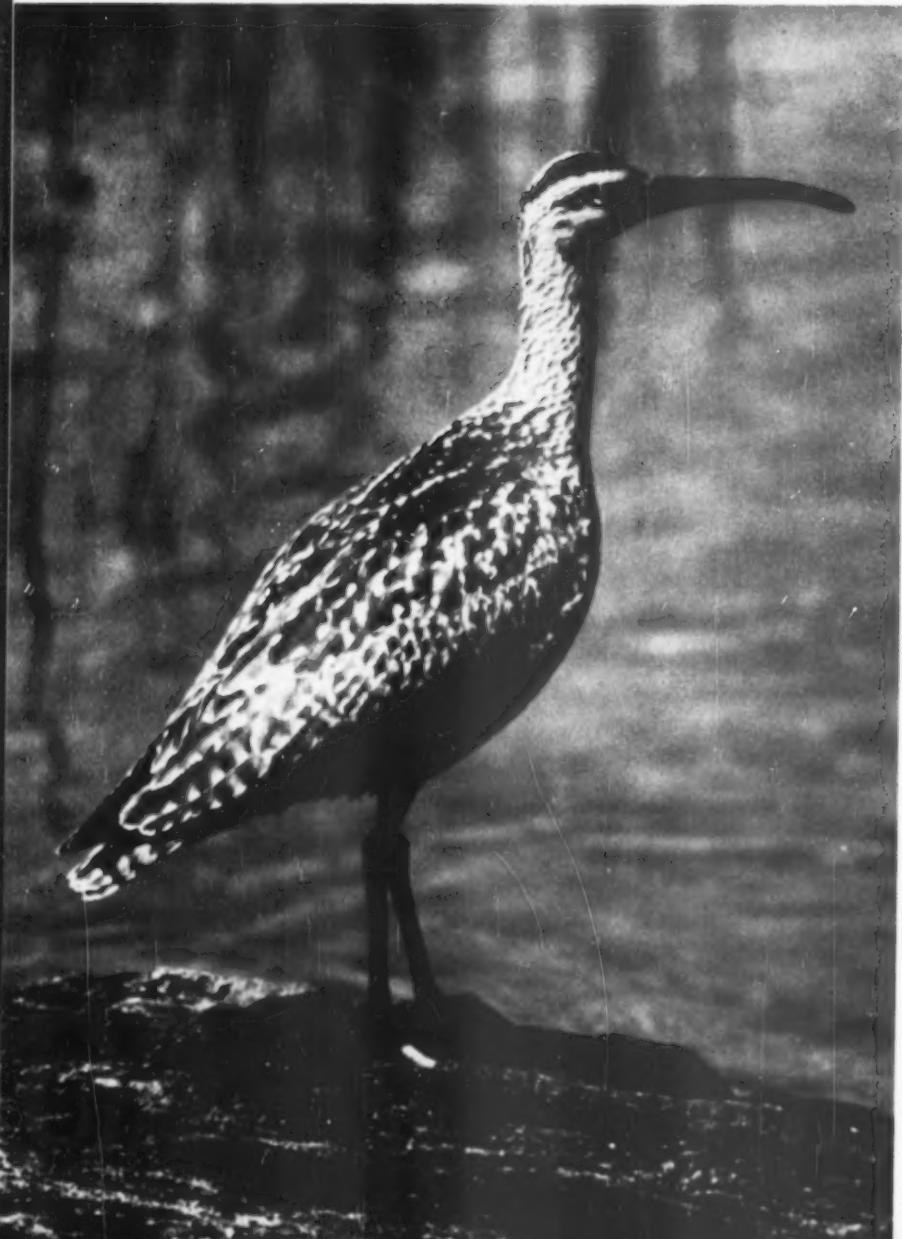


Birding in Iceland

Modern air transportation has brought a land of arctic birds within 10 hours' travel of New York City.



Both the Brunnich's and the Atlantic murre breed in Iceland. Photograph of Atlantic murre by Allan D. Cruickshank.



By Ralph E. Case

IN late June, 1953, my wife and I visited arctic nesting sites of birds in Iceland, and did it all in perfect comfort. It was a thrilling experience. Within 10 hours of direct air flight from New York City, we observed great cliffs literally covered with kittiwakes, auks, murres, and puffins with no greater effort than that occasioned by a three-mile walk in weather equivalent to our April in Connecticut. My time was limited, so that I could not build blinds and proceed in the way that assures success in bird photography. Yet, I came back with some very passable movies, taken in the open with a 2-inch telephoto lens. These included such birds as the harlequin duck, Barrow's golden-eye, eider, kittiwakes,* murres, and a gyrfalcon's nest with young. We had the constant companionship of the golden plover, the whimbrel, and the arctic tern. And I added a dozen birds to my "life-list."

These birds, of course, are not

* Kittiwakes, great black-backed, and glaucous gulls breed in Iceland. The Iceland gull winters there, but nests in Greenland. Snowy owls nest in the more inaccessible interior parts of Iceland. For an excellent, detailed account of the birds of Iceland, see "The Land of the Loon," by G. K. Yeates, published by Country Life Ltd., Tavistock Street, Covent Garden, London, England, 1951. —The Editors

Whimbrels, or Hudsonian curlews, nest near the lake at Thingvellir. Photograph by Allan D. Cruickshank.

unusual in the Arctic. But to observe so many of them from the comparative comfort of a motor car and to sleep at night in good quarters, seems unique to those of us who have never been in a far northern part of our hemisphere.

In Iceland we found a fine old Scandinavian civilization and a warm welcome. It is a land of astonishing natural scenic wonders—geysers, hot springs, lava flows, fiords, waterfalls, mountains, and glaciers. The capital city of Reykjavik is heated by hot water pumped from the ground. The schoolhouses have outdoor swimming pools fed by natural warm water and every pupil must know how to swim in order to graduate. The people are well-dressed, robust, and friendly—the Viking strain. The girls are smart and very pretty. Housing is good, mostly of reinforced concrete, and I should say that the farmhouses seem better than our own, although there are still many picturesque sod, sheep barns left.*

Iceland touches the Arctic Circle at its northeastern corner but the average temperature is about the same as that of Chicago without the severe swings to cold or hot. In other words, Iceland has mild winters and cool summers. In late June, when the birds are nesting, we found

* According to Agnes Rothery's book, "Iceland: New World Outpost," The Viking Press, 1948, one third of Iceland's total population of 132,000, or about 44,000, are still on farms. Another third live in the capital city of Reykjavik. Iceland is about the size of Kentucky (40,395 square miles).

Puffins and other of the oceanic birds live among the volcanic rocks of the Westman Islands. Photograph by Roger Tory Peterson.



Kittiwakes nesting on sea cliffs. Photograph by Henry C. Killingstad.

the weather comparable to late April or early May in New York. The weather along the northern coast of Iceland is much more settled than it is in the vicinity of Reykjavik or Keflavik in the south. There are 24 hours of daylight at this time of the year.

Roads** are narrow and rough but always passable. The small population cannot afford to keep up an extensive system of good highways. One can fly from Reykjavik to all the principal points in quick time on the good Icelandic Airways. From New York the Pan American Airways flies once a week to Keflavik and the fare is \$396.20 round trip per person. Living expenses are close

** Austin H. Clark says ("Iceland and Greenland," War Background Study No. 15, Smithsonian Institution, Washington, D. C., 1943) that Iceland has more than 3,000 miles of motor roads. The Editors

Continued on Page 38

THE JUMBO



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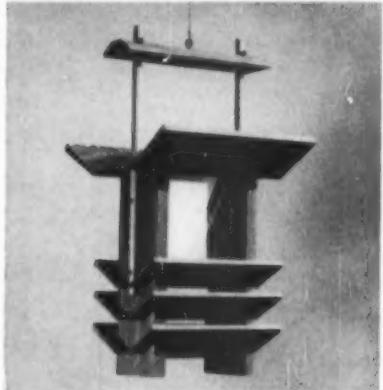
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How to Attract Birds



Along with bird-attracting in her garden, a hostess to birds discovers some astonishing facts about her ill, injured, and orphaned birds. We think that you'll agree that her cedar waxwing, grackle, and others were

Unusual Bird Guests

By Gertrude Viles Grover

FOR HALF a century our hospitality around our old-fashioned cottage at Hallowell, Maine, has invited birds. Those that came to us have far exceeded our expectations. Generation after generation of song sparrows, chipping sparrows, purple finches, and rose-breasted grosbeaks have raised their families at our feeding trays, and woodpeckers, nut-hatches, and chickadees have fed their offspring to the suet that we provided for them.

Our winter concentrations of birds are spirited and colorful, with evening grosbeaks predominating. Blue jays, gold-finches, redpolls, siskins, tree sparrows, and house sparrows, and starlings bring the round-up for breakfast to 100 birds or more. Of the mockingbirds that have established a winter residence in Maine, one was a bird that spent three months at our feeders during the winter of 1919. Several have since made casual calls and one was reported in our neighborhood in December 1951. They have appeared in many sections of Maine but usually disappear with the coming of spring.

Our hospitality to birds is not confined to the out-of-doors, for more than 90 sick, injured, and orphaned birds have taken advantage of our indoor convalescent service, which has contributed tremendously to our knowledge of birds and to our pleasure in their company. Close observations over a long time have brought to light some surprising bird habits and idiosyncrasies, and have raised one question to which no one has

provided us with a satisfactory answer. Do wild birds improvise songs in captivity? Or do some individuals divine the right to sing songs entirely foreign to their innate repertoire? Among our wide variety of bird patients there have been a few—six to be exact—which have so digressed from their usual song habits that we are unable to account for their behavior.

A crippled cedar waxwing, reputed by ornithologists to have but a single note, sang low sweet notes continuously, which was unmistakably a song. We have had seven other waxwing patients but none of them attempted anything beyond the usual lisping note.

We were amazed when a young chipping sparrow broke into a loud rippling song very similar to that of a purple finch. As unusual as the song itself was the fact that he would lie on a certain chair cushion while singing, instead of perching as he would have outside. During the four years he was with us he never once sang the common chipping song.

A beautiful male evening grosbeak, which spent several months with us, would stand in a sunny window watching birds outside and sing low musical notes by the hour. The song was entirely unknown to us who had heard only their loud raucous calls from the treetops on cold winter mornings.

A disabled oven-bird strayed far from the usual as he strolled leisurely about our rooms singing what one would swear was a catbird's song. As a means of identification, the song occasionally ended

Turn to Page 36

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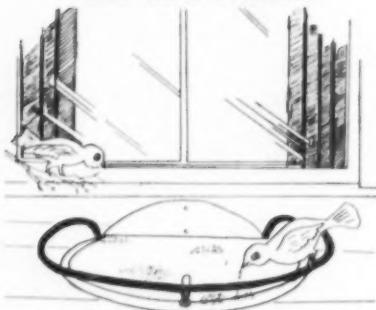
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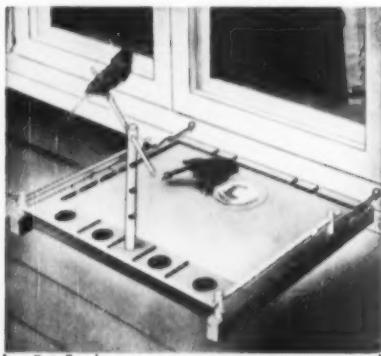
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with "teacher," the note by which he is known in the wild.

Diet for an insectivorous bird during a Maine winter appeared a problem, but small angleworms and tiny white maggot raised in our basement to supplement hard-boiled eggs and ground beef, met the requirements of our convalescing birds. Our most astonishing patient was Johnny Bull, for whoever heard of a singing house sparrow? When about four weeks old he began to sing. He would lift his head, swing it from side to side after the style of a canary, and sing long and loud for so young a bird. The quality of the song was finch-like, clear and musical, and incredible to all who heard it.

In addition to his musical ability, Johnny Bull was an acrobat. There were two perches in his cage, one low, the other high where he preferred to sit. When he came down for food he looped-the-loop around the perch and turned a complete somersault to land on his feet on the perch below. That was the regular procedure for what reason we could not imagine, but it was definitely a showman's act well done. Unfortunately in a panic of fright he escaped from the porch before he was prepared for release and before we had opportunity to convince the doubting Thomases that he really sang.

Then came Joe, the unpredictable grackle. He is still with us and going strong. He was brought in to us, a baby too young to be identified, but from his appearance and voice we concluded that he was a starling.

We welcome all comers except pigeons which are beyond our facilities and recently we rejected a full-grown herring gull which was partially paralyzed from a stroke of lightning.

Our patients are usually registered by name. We were undecided about what to call our grackle, but finally decided to call him Joe. From the first he was a rascal bent on mischief, highly intelligent and wise, but wildly destructive. For several weeks he had the freedom of our house, but when he refused to leave we finally caged him in self defense. He was offered release repeatedly but had not the slightest interest in the outside world. When we let him go out-of-doors, he kept an eye on me so as not to miss my shoulder on the return trip and appeared very happy to get back to the home he knew. He still shuns an open door.

Each morning Joe, the grackle, is released for a bath in the kitchen sink and plays around, jumping in and out like a boy at the old swimming hole, but when he finally decides to bathe, he makes the water fly in all directions. Then looking like a drowned rat he tears around and disrupts the entire

household in a matter of minutes. Everything movable goes upside-down or on to the floor—letters and pencils fly from the desk and magazine covers, book jackets, and the leaves of house plants are missing.

When I go to another room, he flies to my shoulder for he aims to take a hand in all that goes on. One morning he got too curious and fell into the washing machine, which would have been his end had we not quickly rescued him. That incident, together with the fate of a small bird we once witnessed in the Penobscot River, convinced us that songbirds are helpless in water too deep to allow a firm footing from which to spring into the air and take flight.

Joe has implicit confidence in humans and is no respecter of persons. One caller asked to have him released so she could see him in action. His first move was to fly to her hat and snatch a brightly colored rose which he proceeded to tear apart. Our caller was a good sport and said that she had invited it by asking us to release Joe from his cage. Joe is also fascinated with buttons, beads, earrings, or any gadget a person may be wearing, including open-toed shoes and shoestrings.

He is never eager to go back to his cage. When he discovers that we want him to go inside, his first move is to fly up to the inside of an indirect lighting globe, too high for us to reach. There he pecks over the rim to see if he is still pursued. He has all sorts of playthings in his cage for exercise and entertainment. Two of his favorites are a doll's hot-water bottle and a thimble, both of which are used as buckets for carrying water from his drinking dish to the gravel pan. Many days a full pint is dipped up and carried to various points in the cage which is a specially built play pen 4 x 2 x 2 feet. His most spectacular performance is a workout with his punching bag, which is a roll of paper suspended from the top of the cage. He pulls his feathers, spreads his wings and tail, then bats it with his beak jumping and screaming. It is a real show.

Joe's staple foods are mashed potato with butter, ground beef, orange, lettuce, grape nuts, and sunflower seeds. These are supplemented with tidbits from the table and all kinds of green vegetables and fruits in season. He loves to share my cereal at the table, but his manners being what they are, that is only an occasional privilege. He pulls pins from my hair and drops them in my coffee cup and one morning brought my husband's razor from the bathroom as a special gift. We never know what his next move will be, which is his most interesting trait.

And what a song, if such it be! From the hoarse croak of a frog to the highest tone of a violin he has fashioned music

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that is a masterpiece. There is a shelf in his cage designed for his playthings where he often lies and "sings." He and "Peep," the chipping sparrow, are the only birds we have had that lie down while singing.

Joe is a beautiful creature, streamlined and cocky, with iridescent plumage in peacock blue, bronze, and purple. He is wonderfully intelligent, interesting, and entertaining, and in spite of those who say, "I hate grackles," we like him and think he is lots of fun.

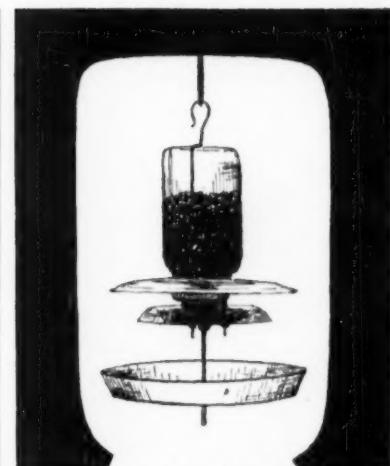
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NATURE IN THE NEWS—

Continued from Page 29

West. What they are fighting is the needless ruination of a stretch of canyon country along the Green and Yampa Rivers on the Utah-Colorado border that has been compared in grandeur, in beauty and in potential national enjoyment to the most notable of our better known parks. But even this argument might not be sufficient if there were not alternate sites outside the National Monument where dams could be constructed that would accomplish the purpose of Echo Park Dam without destroying forever one of the unique remnants of primeval America.

If the Administration and Congress are so ill-advised as to proceed with construction of Echo Park Dam in Dinosaur National Monument we might as well look ahead to another dam flooding out part of Glacier National Park, still another one wrecking a chunk of the Grand Canyon, and lumber companies moving in on Olympic National Park. We also will hear Theodore Roosevelt, Gifford Pinchot and the other great Republican conservationists of a half-century ago turning in their graves.



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BIRDING IN ICELAND

Continued from Page 33

to the average here at home. There is very little to buy in the way of souvenirs or specialties except heavy, patterned sweaters, paintings of the dramatic landscape, and some ceramics.

Anyone planning this trip for next summer should write to Mr. Larimore Moe of the American Legation in Reykjavik. Address him at the American Legation, A.P.O. #81, care of Postmaster, New York. Mr. Moe will then put you in touch with a travel agency in Iceland to arrange for your stay there. He is a great bird enthusiast, who went to school with Roger Peterson, and will do everything possible to make your trip a success. He will introduce you to Finnur Gudmundsson, curator of the Icelandic Museum and reputed to be one of the world's greatest authorities on arctic birds. It is more than likely that Finnur will be able to accompany you for a day and I assure you that such a day will be thrilling.

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With time limited to say about two weeks, I would advise keeping to three areas in which you should see all the birds and most of the points of interest as well.

First—start with the area around Reykjavik. Walk down to the harbor from the Borg Hotel and you will find a sewer outlet right across the street from the travel bureau. Many arctic terns will be flying here and with only a few minutes wait you should see a parasitic jaeger. Terns will be nesting in the park lake along with the mallards and as you walk along you should see a white wagtail, a meadow pipit or a wheatear—probably all three. Then drive out to the lake at Thingvellir for loons and on the way out you should find the English counterpart of our Wilson's snipe, and see and hear the whistling courtship performance done with its wing and tail feathers. You should also see European widgeons, golden plovers, and whimbrels. Then drive down to the southwest of Keflavik and get your first look at cliffs covered with kittiwakes, common murres, Brunnich's murres, puffins, and razor-bills. If you don't find fulmars here you can see them around the higher mountain cliffs just north of Reykjavik. Oyster-catchers, dunlins, ring-neck plovers, and black-headed gulls, may be seen along the shore close to the city.

Second—visit Lake Myvatn, the duck paradise. This place should be a *must* on your Iceland trip. Lake Myvatn, large and shallow, is in the northeastern part of Iceland. It is the nesting place of some 14 species of ducks, also, geese, grebes, and phalaropes. It was near here that we found the gyrfalcon and photographed a raven's nest. At Myvatn, in 1674, occurred the miracle which is part of Icelandic folklore. During one of the many volcanic eruptions in their history, the lava separated and flowed around two sides of the village church without harming the structure.

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It is probably best to fly to Akureyri and spend the night there in the very good Hotel Kea. Here you may watch glaucous gulls from your hotel window. If possible, get Mr. Kristjan Giermundsson of Akureyri to accompany you to Myvatn. He is an excellent bird man and a fine companion who speaks good English. Then hire a car through the tourist bureau and drive to Myvatn. Two clean, little hotels, side by side—the Reykjahlid and the Reinalid—have good food but rather hard beds. You should take an insect repellent for use at Myvatn. There are millions of tiny flies which do not bite but they are very annoying just the same. Take a bath in the warm, crystal clear, underground pool nearby. Don't let all the ducks make you forget to look for a gyrfalcon or watch the English red-wings.

Third—visit the Westman Islands to see all the truly pelagic birds—auks, murres, puffins, gannets, fulmars, petrels, shearwaters, skuas, and cormorants. You will fly there from Reykjavik and it only takes 30 minutes. The Westman Islands lie just south of Iceland's mainland and consist of volcanic chimneys rising sheer out of the water as high as 900 feet.

There is a small fishing village here where you should hire a fishing boat to take you among these islands. The sheer cliffs are just covered with birds. Mr. Moe might arrange for Einar Einarson, head of the Physical Education Department of the Icelandic Schools, to go to the Westmans with you. He is an excellent bird man and probably the best guide to the islands.

The Icelanders are fond of their birds and particularly proud of the gyrfalcon.* As far as I could find out they do not shoot birds, not even the game species. They collect and eat the eggs of some birds but carefully take only a few from each nest. The Icelanders also gather down from the eider nests for export, but only after the brood has hatched.

Try a summer trip to Iceland. You will like the Icelanders and they will like you. May your trip be as rewarding as ours!

* These big falcons, both the dark form and the predominantly white one, are common in Iceland. During the age of falconry they were bought from Icelanders, at extravagant prices, by the royalty of Europe. The gyrfalcon nests on rock ledges, and may return to the same nesting place year after year. Four eggs are the usual number, and the incubation period is about 29 days. The Editors



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As one interested in the distribution of birds at all seasons, I look forward with keen anticipation to every copy of *Audubon Field Notes*. For example, this fall we are noticing a southern movement into our western New York area of Arctic three-toed woodpeckers (the first in many years) and a rather large influx of great shrikes. How far south will these birds winter and will the movement cover the whole northern tier of states or only a limited area? The *Audubon Field Notes* will have the answer, both in the regional reports, and in the Christmas Bird Count.

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By Monica de la Salle
 Librarian, Audubon House

CRUICKSHANK'S POCKET GUIDE TO THE BIRDS: EASTERN AND CENTRAL NORTH AMERICA

By Allan D. Cruickshank, Dodd, Mead & Company, New York, 1953. 7 1/4 x 5 in., 216 pp. Illustrated with 72 natural color photographs by Helen G. Cruickshank and 78 drawings by Don Eckelberry. Indexed. \$2.95.

How often has the would-be bird watcher given up the avocation in despair! Even loaded with field guides and good intentions, he is bewildered for lack of instruction in the fundamentals: where to look, what to look for, and how to identify the "prey" when it has been singled out. Up until now only those fortunate individuals who have been to the Audubon Camp of Maine have had the privilege of being introduced to the colorful teaching methods of Mr. Cruickshank. With this book those methods have been opened to a wider audience. Written expressly for the beginner, it will give him all the basic information for a good start, with a visual key and a system of reducing that blur of feathers to its precise identity by group or family, size, color, silhouette, actions, pattern of field marks, flight, range and season of occurrence, habitat preference, call, and song. This time it is Mrs. Cruickshank's photographs that illustrate a joint publication by this noted ornithological couple, and beautiful they are indeed. Don Eckelberry's line drawings are likewise up to his usual high standard. With all this in hand, we feel sure that many new birders will rapidly graduate to the more technical field guides of Peterson and Pough.

BIRDS OF WASHINGTON STATE

By Stanley G. Jewett, Walter B. Taylor, William T. Shaw and John W. Aldrich, University of Washington Press, Seattle, 1953. 9 3/4 x 7 in., 767 pp. Illustrated. Indexed. \$8.00.

Published in cooperation with the Fish and Wildlife Service, this is the first book of its kind since Dawson's study in 1909. It is comprehensive in scope, giv-

ing detailed description, status, distribution, nesting, and other behavior, for more than 450 birds. A gazetteer of localities mentioned is supplemented by maps, an extensive bibliography is included, and there are many illustrations, some of which are reproduced in color from paintings by Roger Tory Peterson.

A THOUSAND GESE

By Peter Scott and James Fisher, Collins, London, 1953. 8 1/2 x 5 3/4 in., 240 pp. Illustrated. Indexed. 21/ (about \$3.00).

The pink-footed goose is the most abundant of the wild geese wintering in the British Isles. Very little is known about its migration and habits the rest of the year, outside of the fact that it breeds in Greenland, Iceland, and Spitzbergen. In order to learn more about it, two noted ornithologists made an expedition to Iceland for the purpose of banding these birds. Both men kept diaries and subsequently edited each other's writing to make up this book. Needless to say these two specialists, who have watched birds together since childhood, enjoy teasing each other about minor mistakes; and the story thus presented is an interesting one. In addition to banding 1,151 "pinkfeet," they recorded their observations of many other birds and the animal and plant life of a kind of oasis in the central desert of Iceland. Two other scientists, along with Icelandic farmer guides, accompanied them on their "wild goose chase."

THE REDSTART (A New Naturalist Monograph)

By John Buxton, Collins, London. Distributed by John de Graff, New York, 1950. 8 1/4 x 5 1/2 in., 180 pp. Illustrated. Indexed. \$1.75.

That even the most trying experiences can be put to good use is demonstrated by this small volume. For five years during World War II the author was a prisoner in Germany; during this time he made a careful study of the European redstarts around the camp, filling in later with research in ornithological literature. The result is a most interesting

monograph. The species, incidentally, is quite different from the American warbler by the same name.

NEW ILLUSTRATIONS OF THE BIRDS OF JAPAN

By Seinosuke Uchida, Sogen-Sha Press, Tokyo, 1949. Available through Charles E. Tuttle Company, Rutland, Vermont. 10½ x 7½ in., 313 pp. Illustrated. Indexed. \$10.00.

Though the text of this very attractive volume is in Japanese, it should be usable for American readers interested in the birds of the Orient. The 379 colored illustrations are conveniently numbered and matched with their names, which are given in English and Latin as well as Japanese. Both English and Latin names also appear in the index, thus facilitating reference to a particular family or species.

THE MAMMALS OF MINNESOTA

By Harvey L. Gunderson and James R. Beer, University of Minnesota Press, Minneapolis, 1953. 9½ x 6½ in., 190 pp. Illustrated. Indexed. \$3.50.

This excellent book is much more than a systematic catalogue. While the mammals included are limited to those occurring in Minnesota, the presentation is popular as well as accurate, illustrated with numerous photographs and maps showing distribution both within the state and throughout North America. Common names and measurements are given, along with descriptions and concise information on habitat, food, and behavior, and there is a selective list of references for further readings. Keys to orders and species are included, and introductory chapters deal with the ways of studying mammals and the geography of Minnesota. School teachers in particular should find this book most useful.

WILDLIFE IN ALASKA: AN ECOLOGICAL RECONNAISSANCE

By A. Starker Leopold and F. Fraser Darling, Ronald Press, New York, 1953. 8½ x 5½ in., 129 pp. Illustrated. Indexed. \$2.75.

The purpose of this book, sponsored by the New York Zoological Society and the Conservation Foundation, is to stress the importance of wildlife management in a region where the resources of the land are still largely intact. The authors have investigated the status of big game, particularly the caribou, reindeer, and moose in Alaska. The economic importance of wildlife to the native population, and the range problem in the territory are studied. It is suggested that a number of unspoiled regions in Alaska be set aside as wilderness areas. It is a pity that so much interesting data is

somewhat obscured by abstractions, making it difficult at times to follow the discussion.

ALASKA'S FISH AND WILDLIFE

By Clarence J. Rhode and Will Barker (U. S. Fish and Wildlife Circular #17), Government Printing Office, Washington, D. C., 1953. 9½ x 6 in., 60 pp. Illustrated by Bob Hines. Indexed. 25¢.

This booklet gives an excellent summary of the natural history of Alaska. A map and a short description of the various regions are followed by chapters on fishes, mammals, and birds, with lists of species, range maps, and a short bibliography. Trees and shrubs important to wildlife are also included. The black-and-white drawings are charming and effective.

A FIELD GUIDE TO ROCKS AND MINERALS

By Frederick H. Pough, Houghton Mifflin Company, Boston, 1953. 7½ x 4¾ in., 353 pp. Illustrated. Indexed. \$3.75.

This new addition to the Peterson Field Guide series can be used anywhere in the world, by amateurs and profes-

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WILD FLOWERS OF WESTERN PENNSYLVANIA AND THE UPPER OHIO BASIN

Text by O. E. Jennings, watercolors by Andrey Avinoff, University of Pittsburgh Press, 1953. 2 vols., 14 1/4 x 10 1/2 in., 574 pp., 200 color plates. Indexed. \$60.00.

Whoever has seen an original watercolor by Andrey Avinoff is not likely to forget it. The fresh and lively sense of texture, the delicate colors, and the precise but free technique of drawing, bring onto paper something of the fragrant bloom of gardens and fields, or the artful simplicity of a bouquet in a country house. The second volume of this monumental work reproduces Dr. Avinoff's studies of wildflowers with such extraordinary beauty and fidelity that it deserves to stand beside the productions of another era, when bookmaking was a matter of leisure and the craftsman's labor of love. The volume of text, which has been written and produced with the same painstaking care, contains analytical keys to the families, genera, species and, occasionally, to varieties; also descriptive data, dates of flowering and fruiting, synonyms, general and

local distribution (with many maps), a bibliography, a gazetteer of the region, and a glossary.

FUNDAMENTALS OF ECOLOGY

By Eugene P. Odum, W. B. Saunders Company, Philadelphia, 1953. 9 1/2 x 6 1/4 in., 384 pp. Illustrated. Indexed. \$6.50.

This textbook designed for college courses will be an excellent reference for naturalists and workers in related fields. They will find the first part of the book, which is devoted to an outline of general principles, particularly useful. Parts two and three are about habitats and management.

CHECK LIST OF NATIVE AND NATURALIZED TREES OF THE UNITED STATES (INCLUDING ALASKA)

By Elbert L. Little, Jr. (Agriculture Handbook #41). Government Printing Office, Washington, D. C., 1953. 9 1/2 x 6 in., 472 pp. Indexed. \$2.00.

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ROGER PETERSON'S BIRD'S-EYE VIEW

Continued from Page 7

In bird photography we lure birds by food, or by water; appropriate branches are often put up so that the bird will sit in just the right spot before the camera. If we use flash, we are actually using an artificial source of light—"controlled" light. Yet all of these techniques are pretty generally accepted as legitimate. The important thing is that the bird be unrestrained, free to come and go. If, however, a bird is placed in a room or in an enclosure it might just as well be in the Bronx Zoo.

A photographer in working on a nest might carefully tie back a twig so that it won't come between the nest and the lens. But if he cuts off the branch and removes the nest to a more convenient location, perhaps at the foot of the tree, he is going too far. Any wildlife photographer who endangers the lives of his subjects should not be taking pictures. Photography of colonial birds should never be undertaken by anyone who does not understand something of bird psychology and particularly of colony behavior. How well I remember, 25 years ago, a photographer addressing the Linnaean Society of New York who told us how long it took the Texas sun to broil a young pelican as compared to the time it took to fry a young egret! It did not seem to occur to him that his prolonged presence at midday was responsible.

And what about dubbing things in on photographs? Double-printing a good sky behind a flying bird might seem innocent enough. But if the practice is extended further by fitting the bird to the environment, it certainly verges on nature-faking. Perhaps the most flagrant example of this is to be seen in Howell's "Florida Bird Life," a full-page picture of a flock of flamingos in the canal along the Tamiami Trail. It got into the book as an authentic record of flamingos for that locality. Later it was pointed out by a sharp-eyed critic that the flamingos were sharp, and so was the distant horizon, yet the area between was not in focus. No photograph ever has two centers of focus.

In the final analysis it is up to the photographer and his conscience to define his ethics. Those who view his pictures expect him to be honest.

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Children's Books

By Dorothy Edwards Shuttlesworth



"READING is fun," the slogan of the recently celebrated Children's Book Week, expresses a most agreeable thought. As we watch children absorb the fundamentals of reading we delight in their learning a skill that will bring them not only knowledge but happiness and companionship. But something of a bombshell has been dropped in the midst of this pleasant picture in the form of a book by psychiatrist Frederic Wertham which discusses comic books—the 90 million of them that are read each month by children in America! As we know quite well, with the majority of these publications the "comic" designation is completely inappropriate; a vast number of them make no pretense at humor but are concerned solely with crime, violence, and sadism.

What is the attraction of such material for innocent youngsters? The answer is complex, but surely the constant availability of "comics" in part accounts for their success. At every railroad station and newsstand and at countless drugstores, candy, stationery, and general stores, there is the familiar display counter and sign, "Comics—Read 'em for Fun!"

Until such enlightened time as law forbids the sale of crime-comics, parents have no effective means of preventing children from being exposed to them. But one way we can counterattack is by keeping boys and girls supplied with good reading. The availability of attractive books with appealing text is important from the time a child receives his "Before We Read" assignment in the first grade. School and public libraries do a tremendous job furnishing suitable books to young students, but since children have a special pride in something that really belongs to them, it is most desirable that they have a good selection of their own. We have reason to be grateful to the publishers who are producing books that we can make part of our home libraries—books that are wholesomely stimulating, and which bring the right kind of "fun" to the generation that soon will be responsible for the literary standards of our country.

THE TREASURE OF GREENBAR ISLAND

By Judy Ellis, Julian Messner, Inc., New York, 1953. 8½ x 5½ in., 68 pp. Illustrated by Louis Zansky. \$1.60.

Suspense and adventure abound in this story of Ruthie and Mike Willets and their mother who inherit an old house on a lonely island. The children find a map which suggests that buried treasure lies near; the actions of a mysterious neighbor convinces them of the fact. They are especially anxious to find it because their larder is meagerly supplied and money is scarce. Treasure is finally revealed, but not in the form of gold. It is the discovery of how to grow food in their barren surroundings by changing their sand dune property into rich, fertile soil. While enjoying the lively plot, readers will learn about the relation of soil to plant growth, and find interesting suggestions for their own gardening activities. The vocabulary of "The Treasure of Greenbar Island" is especially suitable for 8 to 10-year olds.

ZOO BABIES

By William Bridges, William Morrow and Company, New York, 1953. 10 x 6¾ in., 95 pp. Illustrated by photographs. \$2.50.

Anybody, young or old, looking at the photographs which illustrate "Zoo Babies" is likely to decide that young animals are the most delightful of all comedians. Whether it's Dusty, the grizzly bear cub, making use of its own private bathtub, or Herbert, the walrus, satisfying his enormous appetite, each young animal has some irresistibly comic appeal. And as we read some of these stories aloud, I heard more genuine laughter over the gorilla that had to be burped and the little panda that didn't know about water until he fell into some, than at a lengthy session of movie cartoons in which animal characters shot at, dynamited, and otherwise mistreated each other.

Mr. Bridges began his career as a newspaper reporter, but his love of ani-

mals caused him to gravitate to the Bronx Zoo where he became curator of publications. His writing talents and real affection for zoo creatures have been revealed in many delightful accounts of the wild animals that became adopted citizens of a big city. "True Zoo Stories," published five years ago, and now "Zoo Babies" are especially designed to captivate boys and girls. Whether or not they live within visiting distance of the Bronx Zoo, they will delight in the behind-the-scenes antics of the animal personalities on which Mr. Bridges turns the spotlight.

MICROBES AT WORK

By Millicent E. Selsam, William Morrow and Company, New York, 1953. 8½ x 6½ in., 95 pp. Illustrated by Helen Ludwig. \$2.00

Parents who remember Paul de Kruif's fascinating book, "The Microbe Hunters," will be especially happy to put "Microbes at Work" into their children's hands. Because microbes are such tiny organisms, they often seem mysterious and beyond the understanding of the layman, and especially of children. In this book, however, Miss Selsam clearly explains what they are and what they do, and suggests a number of experiments on microbes that can be done in an ordinary kitchen without the aid of so much as a microscope. The reading of "Microbes at Work" may not turn a child into a Leewenhoek or Pasteur, but it will give him an appreciation of how microbes are made to work for us in producing bread, cheeses, and other foods, and such "wonder" drugs as penicillin. It will also impress on him the harm that can be done by some microbes, and how these may be kept in check.

A BOOK OF THE SEASONS

An Anthology, made and decorated by Eve Garnett, Robert Bentley, Inc., Boston, 1953. 10 x 7½ in., 80 pp. Illustrated. Indexed. \$2.75.

An anthology is likely to appear less attractive in makeup than a book by a single author because of the variety of titles and names that appear throughout. This collection of nature poems is designed to avoid such a handicap by having titles and credits appear only at the end. The verses and exquisite pictures and decorations flow as uninterrupted as do the seasons with which they are concerned. The charm of its appearance and the inclusion of a wide range of poets of the past and present makes this volume a little gem for a child's library.

LONE MUSKRAT

By Glen Rounds, *Holiday House*, New York, 1953. 8½ x 5¾ in., 125 pp. Illustrated. \$2.25.

In the aftermath of a forest fire, Old Muskrat finds himself the sole survivor of a once-flourishing colony. He leaves his burned-out valley for new territory, and embarks on a series of perilous adventures. Boys and girls whose sympathy is caught by the animal's homeless plight will follow them with especial interest. Eagle, coyote, weasel, and wildcat are among the creatures he must outwit; he must cope with the forces of nature by having a new burrow ready before winter weather begins. Author Rounds—a man of action and the out-of-doors—writes without false sentimentality. His plain-spoken way of telling his story makes readers feel a part of the scene; this fight for survival is something real, something to be admired as a plucky animal refuses to be "licked" by circumstances and learns from past experiences how to meet new dangers.

THE AIR AROUND US

By Margaret Friskey, *Childrens Press*, Chicago, 1953. 8½ x 7½ in., 47 pp. Illustrated. \$2.00.

Here is another of the "True Books" series. With vocabulary suited to the reading level of the second grade, and lively pictures in two colors on almost every page, it is especially planned for very young science students. Miss Friskey's elementary explanations of what makes clouds, rain, hail, sleet, and snow, and what causes wind, thunder, and lightning, will furnish a splendid background for a child as he advances to more intricate aspects of these wonders of nature.

MAKE WAY FOR WATER

By Eleanor Clymer, *Julian Messner, Inc.*, New York, 1953. 8½ x 5½ in., 64 pp. Illustrated. \$1.60.

"Make Way for Water" is designated as part of the Julian Messner Adventure, rather than Science, Series. But its concern with a city's water supply and explanation of a watershed actually brings it into the realm of the sciences. Peter, a very true-to-life boy, is angry at the prospect of his father's farm being flooded to make a reservoir for a distant city. However, after becoming friends with an employee of the Water Supply Department, he learns how vitally needed is the water he has taken for granted. Creeks, wells, and springs mean nothing to a community of millions of people! Peter discovers also how the great reservoirs function, and realizes how dependent on each other are people of the country and city areas.



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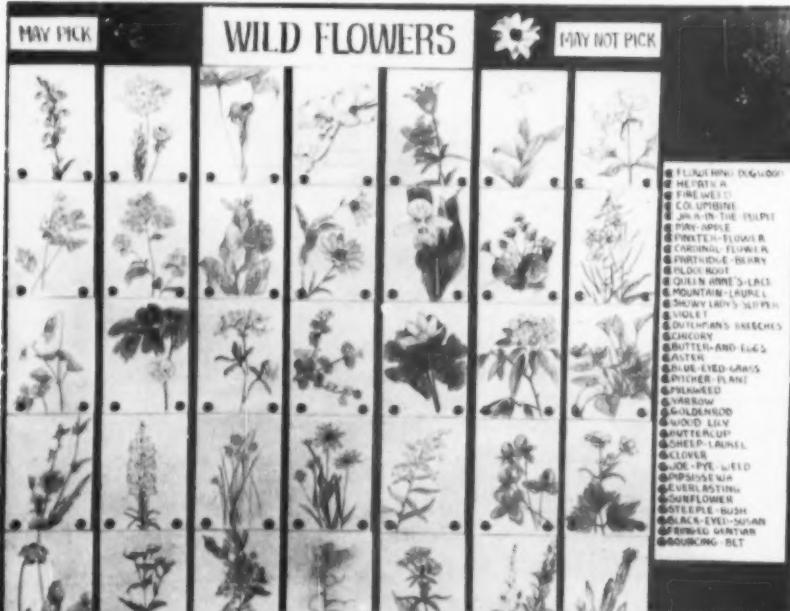


Children using an electric nature game at the Audubon Center of Connecticut.
Photograph by Gene Heil.



The bird game may be constructed by using the colored bird cards provided through the Service Department of the National Audubon Society, or children may draw their own.

A two-way wildflower game planned both for identification and to show whether or not the flower may be picked. If it may, a green light flashes; if not, a red one lights up. The flower pictures were hand-done for this game.



Your CHILDREN

By Shirley Miller

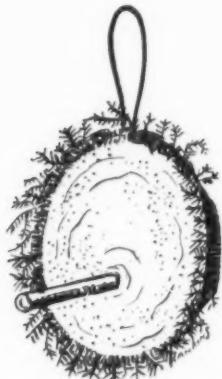
Electric Nature Games

A recent exhibition of electric nature games at Audubon House attracted so much interest that we're printing pictures of several in this display with brief descriptions about them. These were constructed by Mrs. Avery Rockefeller for the nature and conservation work she carries on in Connecticut schools, using directions found in Chapter 6 of her *Nature Program Guide* in the Audubon Junior Club material. Briefly, this involves assembling a group of pictures without identifying names in the category selected for the game and pasting these to heavy cardboard or masonite (Mrs. Rockefeller used the tops of celery cartons). The correct names are then listed alphabetically in a column on the side of the board. A brass paper fastener is inserted below each picture and this is connected by a wire on the back of the board to a similar paper fastener opposite the correct name. A metal-pointed feeler is contacted with one of the pictures, and the other feeler touched to the name. If the answer is correct, a loud buzz is heard from a concealed buzzer. In addition to the games pictured, Mrs. Rockefeller also has one for twigs, seeds, and woods. The possibilities are endless. You and your children might try your hand at games for mammals, insects, or leaves. A New York attorney and his son, seeing this exhibit, are now working on one for their mineral collection, and they plan one for groups of stars next.

Pies for Birds

Here's another suggestion for winter bird feeding which carries with it a money-making idea for one of your pet projects. It comes from Mrs. Asa Jennings of Darien, Conn. Getting her inspiration from seeing an Audubon Junior Club birthday cake for the birds, she came up with a variation she called a "Bird's Thanksgiving Pie." She utilized the little aluminum foil containers for frozen chicken pot pies as a base, and constructed 69 of these (Darien must be chicken pot pie crazy) which she sold at 50¢ each at her Sunday School Fair. The ingredients for these pies (a mixture of suet, sunflower seeds, cran-

berries, raisins, bird seed, etc.) were all donated, including 50 pounds of suet, by the Springdale Locker Company. The illustration shows you how she made these.



Drawing by Clara May Hankins.

April 26 Is Audubon Day

Continent-wide observance of Audubon Day on April 26—the birthday of John James Audubon—will be encouraged by the National Audubon Society.

Programs in honor of Audubon and the conservation work that has been accomplished in his name will be presented before many school and adult audiences. The Society suggests that schools dedicate their grounds as wildlife sanctuaries on April 26. Some communities probably will take that opportunity to dedicate themselves as "town sanctuaries," as already has been done so extensively in South Carolina.

A bulletin containing detailed suggestions for the observance is available from the Public Information Department.

A REPORT ON THE FLAMINGO

Continued from Page 28

efforts of William H. Phelps, Jr., in Caracas, the Venezuelan Ministry of Agriculture has asked for and obtained the cooperation of the *Guardia Nacional*, a branch of the regular army, for the protection of the flamingos inhabiting islands off the coast, including La Orchila and Los Roques. In Cuba, where special legislation, soon to reach its termination date, set up protection that included an extensive "National Flamingo Refuge," no actual protection has been forthcoming. Due to the unsettled political situation in that country it seems doubtful if any improvement can be expected in the near future, unless special protection can be provided by private means.

The increasing danger of disturbance from low-flying aircraft has been reduced in several areas by issuing orders and notices. This was done last year in the Bahamas where the Director of Civil Aviation established a ceiling of 2,000 feet over flamingo concentrations on Inagua, Mayaguana, and Abaco. Through the cooperation of the U.S. Coast and Geodetic Survey, Aeronautical Chart Branch, this notice has been printed on the World Aeronautical Charts of that region. In addition, owners of private aircraft stationed at Inagua have voluntarily restricted themselves to areas of the island over which they will fly. Military aircraft

are also cooperating.

At Bonaire, as a result of Bayard Read's recommendation, the Superintendent of Air Traffic set up an official ceiling of 6,000 feet over the greater part of that island. Military planes are instructed to observe the same ceiling. In this case the Air Traffic Office has the power to ground a pilot in the event of a violation, provided he resides in the Netherlands Antilles or works there. And, as Mr. Gerharts writes us, the Air Traffic Superintendent is himself "a lover of wildlife."

Thus considerable progress has been made and more should be forthcoming. It will be needed. Of the 16 nesting attempts studied, nine were failures—seven as a result of heavy rains, high winds or other "Acts of God," and two from raids. Unless these raids can be stopped the flamingo may have trouble in establishing and maintaining a stable population. For a species that is already losing ground, losses from adverse weather are difficult enough to cope with. To pile additional losses on top of those from natural causes, which is what happens as a result of human disturbance, may well prove to be the extra load that will tip the scales the wrong way.

This problem is still wide open in Cuba, but it is hoped that a solution will soon be forthcoming. Our greatest concern elsewhere, in regions where protection by wardens, military authorities or local police has now been provided, is that this protection will be permanent. In our experience, natives who have been accustomed to preying on bird colonies at will cannot with impunity be turned loose after a year or two and told to do better in the future. Any laxness or let-up in the protection program will be taken advantage of immediately, perhaps with fatal results to the colony in question. Those responsible for raising funds and directing the splendid program that has been put into operation in the Bahamas must have stronger support, particularly from residents of the Colony and from the Bahamas Government itself. Every possible encouragement should also be given to those in other countries who are seeking improved laws and more realistic protection. Ahead lies a turning point for the American flamingo. Which way shall it be?

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LETTERS—Continued from Page 4
describable suggestion of things mysterious, melancholy, and remote.

Then suddenly (as it seems, looking back) they vanished. For more than 30 years I have not seen an upland sandpiper in Massachusetts, despite at least

one visit each summer. And for 20 years I did not see one at all. Then one day in early June of 1941, driving along Route 20 just east of Auburn, New York, I heard that unforgettable call again. I jammed on the brakes, pulled off the pavement, and looked and lis-

tened. The call came again; and then the bird itself appeared.

Ever since, when driving past the "plover field"—a piece of marshy pasture land—my wife and I have stopped to listen and look. For two or three years after our first experience, we saw the "spirit birds" or heard their call. But of late we have listened and looked in vain. Since then our only sight of an upland sandpiper was in central Wisconsin in early August of 1947, although we have done much driving around New England and the Middle West.

We should like to believe, as Mr. Grimm's article suggests, that the upland sandpiper is becoming more common. But our own observations suggest that it is still almost non-existent in its former range between Massachusetts and Minnesota. I wonder what has been the experience of other observers?

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Dickcissel Visitors

On page 226 of the September—October 1953 issue there is a picture of a dickcissel. Is it the female? It doesn't look like the pictures of the male in my bird books. I had two of what I was sure were male dickcissels in our doorway for several weeks this fall. They came to drink water daily, and even did a little singing in a soft undertone.

MRS. CHARLES L. FOOTE
Omro, Wisconsin

Editors' Note: The dickcissel on page 226 of the September—October issue of *Audubon Magazine* is a female, as Mrs. Foote has guessed. Female dickcissels are paler than female English sparrows; have sharper streaks on the back, a whiter eye stripe than the female English sparrow, and sharply pointed tail feathers. The eye stripe, like the breast, is usually touched with yellow.

Mrs. Foote is about on the eastern edge of the breeding range of the dickcissel, and might see these birds occasionally during fall migration, which for this species is usually early.

February is the month when decision must be made
for participation in next season's (October through May)



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